

# SDS REPORT

<b>Applicant</b>	:	<b>SHENZHEN HUIPU ENERGY TECHNOLOGY CO., LTD.</b>
		No.6 Buliding, Jili Road, Pingxi Community, Pingdi Street, Longgang, Shenzhen,
<b>Manufacturer</b>	:	<b>SHENZHEN HUIPU ENERGY TECHNOLOGY CO., LTD.</b>
		No.6 Buliding, Jili Road, Pingxi Community, Pingdi Street, Longgang, Shenzhen,
<b>Product Description</b>	:	<b>Nickel Metal Hydride Battery</b>
<b>Product Code</b>	:	<b>Nickel-Metal Hydride Battery</b>
<b>Trade Mark</b>	:	N/A

This report is limited to the above applicant company and the product model only.



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Establishment / Revision: Date:Nov. 19,2015

### MATERIAL SAFETY DATA SHEET

*(according to ISO 11014: 2009 )*

#### SECTION 1: Identification of Product and Supplier

**Product Name:** Nickel Metal Hyoride Battery**Sample Model No.:** Nickel-Metal Hydride Battery

Nominal voltage: --

Rated capacity: --

**Manufacturer:** SHENZHEN HUIPU ENERGY TECHNOLOGY CO., LTD.**Address:** No.6 Buliding, Jili Road, Pingxi Community, Pingdi Street, Longgang, Shenzhen,**Tel:** +86-755-2893 8364**Fax:** +86-755-2893 8225**Emergency telephone number:** [Weekday] +86-755-2893 8364

[Night and holiday] +86-755-137 6018 9009

#### SECTION 2: Composition / Information on Ingredients

**Substance or preparation :** Preparation**Information about the chemical nature of product :**

Common chemical name / General name	CAS number	Concentration / Concentration range	Classification and hazard labeling
NICKEL	7440-02-0	80.0%	--
Manganese	7439-96-5	3%	--
Potassium	7440-09-7	2%	--
COBALT	7440-48-4	3%	--
Lron	7439-89-6	12.0%	--



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### SECTION 3: Hazards Identification

The NiMH batteries described in this Product Safety Data Sheet are sealed units which are not hazardous when used according to the recommendations of the manufacturer and as long as their integrity is maintained.

Do not short circuit, puncture, incinerate, crush, force discharge or expose to temperatures above the declared operating temperature range of the product. Risk of fire or explosion.

Under normal conditions of use, the active materials and liquid electrolyte contained in the cells and batteries are not exposed to the outside, provided the battery integrity is maintained and seals remain intact. Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leads to the activation of safety valves and/or the rupture of the battery container. Electrolyte leakage or battery vent/explosion/fire may follow, depending upon the circumstances.

#### Health Hazards (Acute and Chronic)

These chemicals are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused. Contact of electrolyte and extruded lithium with skin and eyes should be avoided.

**Inhalation:** During normal use inhalation is an unlikely route of exposure due to containment of hazardous materials within the battery case. However, should the batteries be exposed to extreme heat or pressures causing a breach in the battery cell case, exposure to the constituents may occur. Inhalation of cobalt dusts may result in pulmonary conditions.

**Ingestion:** If the battery case is breached in the digestive tract, the electrolyte may cause localized burns.

**Skin:** Exposure to the electrolyte contained inside the battery may result in chemical burns. Exposure to nickel may cause dermatitis in some sensitive individuals.

**Eye:** Exposure to the electrolyte contained inside the battery may result in severe irritation and chemical burns.

**Environment hazards:** Lower pollution to the environment.

**Burn & burst danger:** Do not dispose of battery in fire-- may explode. Do not short-circuit the battery—may cause fire.

### SECTION 4: First Aid Measures



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In case of battery breakage or burst, please evacuate employees from the contaminated area and ensure maximal ventilation in order to break-up corrosive gas, smoke and unpleasant odours.

If it occurs, by accident, following measures must be taken:

- Inhalation** : Provide fresh air. In severe cases obtain medical attention.
- Skin contact** : Wash off skin thoroughly with water.  
Remove contaminated clothing and wash before re-use.  
In severe cases obtain medical attention.
- Eye contact** : Irrigate thoroughly with water for at least 15 minutes.Lifting upper and lower lids, until no evidence of the chemical remains.  
Obtain medical attention.
- Ingestion** : Wash out mouth thoroughly with water.  
Do not induce vomiting or give food or drink.  
Seek medical attention immediately
- Further treatment** : All cases of eye contamination, persistent skin irritation and casualties who have swallowed this substance or been affected by breathing its vapours should be seen by a doctor.

### SECTION 5: Fire Fighting Measures

If fire or explosion occurs when batteries are on charge, shut off power to charger.

**Extinguishing Media:** METL-X, sand, dry ground dolomite, or soda ash, or flood the area with water.

**Fire Fighting Procedures:**

A smothering agent will extinguish burning nickel metal hydride batteries.

Water may not extinguish burning batteries but will cool the adjacent batteries and control the spread of fire.

Burning batteries will not burn themselves out.

Virtually all fires involving nickel metal hydride batteries can be controlled with water.

When water is used, however, hydrogen gas may evolve.

In a confined space, hydrogen gas can form an explosive mixture.

In this situation, smothering agents are recommended.

**Fire fighters** should wear self-contained breathing apparatus.



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**Specific Hazards:** Burning nickel metal hydride batteries can produce toxic fumes including oxides of nickel, cobalt, aluminum, lanthanum, cerium and neodymium

### SECTION 6: Accidental Release Measures

#### Emergency treatment:

- Remove personnel from area until fumes dissipate.
- Do not breathe vapours or touch liquid with bare hands.
- Provide sufficient room ventilation if required.

#### Precautions for human body:

- If the skin has come into contact with the electrolyte, it should be washed thoroughly with water.
- Use neoprene or natural rubber gloves and protective glasses, if handling an open or leaking battery.

#### Methods of Clean up:

Battery materials should be collected in a leak-proof container and disposed of as Special Waste in accordance with local regulations.

**Prevention of secondary hazards:** Avoid re-scattering. Do not bring the collected materials close to fire.

### SECTION 7: Handling and Storage

#### Storage:

Store in a cool (preferable below 25 °C), well ventilated area, away from moisture, sources of heat, and open flames.

- Elevated temperatures can result in shortened battery life.
- Temperatures above 70 °C may result in battery leakage and rupture.
- Keep adequate clearance between walls and batteries.

Since short circuit can cause burn, leakage and rupture hazard, keep batteries in original packaging until use and do not jumble them.

#### Handling:

- Do not crush, pierce, short (+) and (-) battery terminals with conductive (i.e. metal) goods, which would



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end up into excessive heating.

Do not directly heat or solder.

Do not throw into fire.

Do not mix batteries of different types and brands.

Do not mix new and used batteries.

Keep batteries in non conductive (i.e. plastic) trays.

Do not disassemble, mutilate or mechanically abuse cells and batteries.

In order to prevent seal or safety vent damage, never solder the batteries directly at the battery terminals.

### Charging:

This battery is made to be charged many times.

Use only specified charger.

Follow manufacturer data in respect of charge current and charge time.

Note correct polarity.

Improper charging can cause heat damage or even high pressure rupture.

### Disposal:

Dispose in accordance with all applicable federal, state and local regulations.

## SECTION 8: Exposure Controls / Personal Protection

**Ventilation Requirements:** Not necessary under normal conditions. Room ventilation may be required in areas where there are open or leaking batteries.

### Personal protective equipment :

- **Respiratory protection:** Not necessary under normal conditions. Avoid exposure to electrolyte fumes from open or leaking battery. In all fire situations use self-contained breathing apparatus

- **Hand protection:** Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery

- **Eye protection:** Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.

## SECTION 9: Physical and Chemical Properties



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**Nominal Voltage:** 1.2VDC**Rated Capacity:** N/A**Appearance:**

- **Physical state:** Solid
- **Form:** Nickel plated steel cell, eventually sleeved.
- **Color:** Covered by color sheet, Metallic color (when without tube or sheet)
- **Odor:** Odourless (unless in case of damaged product with leaking electrolyte)

**pH:** N/A**Specific temperatures/temperature ranges at which changes in physical state occur:**

There is no useful information for the product as a mixture.

**Flash point:** N/A**Explosion properties:** N/A**Density:** N/A**Solubility ,with indication of the solvent(s):** Insoluble in water

### SECTION 10: Stability and Reactivity

**Stability:** Stable under normal use**Conditions to avoid:** Heat above 70 °or incinerate. Deform. Mutilate. Crush. Pierce. Disassemble. Short circuit. Expose over a long period to humid conditions.**Materials to avoid:** Strong mineral acids, alkali solutions, strong oxidising materials and conductive materials.**Hazardous decomposition products:**

Electrolyte solution is corrosive to all human tissues and will react violently with many organic chemicals.

Electrolyte solution reacts with zinc, aluminum, tin and other materials releasing flammable hydrogen gas.

### SECTION 11: Toxicological Information

Nickel metal hydride batteries are not hazardous waste. Under normal conditions of use, Ni-MH batteries are non-toxic.

There is no available data on the product itself. This product does not elicit toxicological properties during routine handling and use.



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Sensitization: NO

Teratogenicity: NO

Reproductive toxicity: NO

Acute toxicity: NO

If the cells are opened through misuse or damage, discard immediately.

Internal components of cell are irritants sensitizers.

### SECTION 12: Ecological Information

The sealed NiMH cells as a product are not presenting ecotoxicological hazards.

In case of product destruction or opening, the substances described in paragraph 11 can come in contact of the environment.

The metals content in a NiMH battery are toxics for the environment.

**Persistence/ degradability:** Since a battery cell and the internal materials remain in the environment, do not bury or throw out into the environment.

If not recycled, it must be disposed of in accordance with all state and local regulations.

### SECTION 13: Disposal Consideration

**USA:** NiMH batteries are classified by the federal government as non-hazardous waste and are safe for disposal in the normal municipal waste stream. These batteries, however, do contain recyclable materials and are accepted for recycling by the Rechargeable Battery Recycling Corporation's (RPBC) Battery Recycling Program.

In the European Union, manufacturing, handling and disposal of batteries is regulated on the basis of the DIRECTIVE 2006/66/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC.

Importers and users outside EU should consider the local laws and rules.

In order to avoid short circuit and heating, used nickel metal hydride cylindrical cells and batteries should





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never be stored or transported in bulk.

Proper measures against short circuit are:

- Storage of batteries in their original packaging
- Coverage of the terminals

### SECTION 14: Transport Information

Nickel Metal Hydride Batteries (sometimes referred to as "Dry Cell" batteries) are not listed as dangerous goods under the International Civil Aviation Organization ((ICAO), 2011-2012 edition, International Air Transport Association (IATA) and U.S. Department of Transportation (DOT), 49 CFR.

These batteries are not subject to the dangerous goods regulations provided they meet the requirements contained in the following Special Provisions:

Special Provision A199 in the IATA Dangerous Goods Regulations and ICAO Technical Instructions and Special Provision 130 in 49 CFR 172.102 of the U.S. hazardous materials regulations require these batteries to be packed in such a way to prevent short circuits or generating a dangerous quantity of heat.

In addition, the IATA Dangerous Goods Regulations and ICAO Technical Instructions require the words "Not Restricted" and "Special Provision A199" be provided on the air waybill, when an air waybill is issued.

By ocean the International Maritime Organization (IMO) regulates them as Class 9 dangerous good under UN 3496 and Special Provision 117 and 963 which allows a total quantity of less than 100kg gross mass to be transported as non-regulated.

International Air Transport Association (IATA) Dangerous Goods Regulations, 56th, 2015.

### SECTION 15: Regulation Information

#### Survey of Standards:

<u>Regulatory Body</u>	<u>Special Provisions</u>
ADR	295 - 304, 598
IMDG	UN 3496 - Special Provision SP 963
IATA	A199
ICAO	UN 3028 Provisions 295 - 304



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UN	UN 3028 Provisions 295 - 304
US DOT	49 CFR 172.102 Provision 130

Ni-MH batteries are submitted to the European Community Directive 91-157/CE for recycling.

Substances contained are submitted to the REACH 06-1907/CE regulation

### SECTION 16: Other Information

The information contained in this Safety data sheet is based on the present state of knowledge and current legislation.

Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use.

This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

This safety data sheet provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.

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