

## MSDS

Date: May 21, 2013

### Material Safety Data Sheet

#### Section 1 - Chemical Product and Company Identification

**Product Name:** Nickel-Metal Hydride Battery

**Manufacture:** Shenzhen Huipu Energy Technology Co., Ltd

**Address:**

**Tel:** 212 691-5900

**Emergency Telephone:** 800 274-5800

**Fax:** 212 807-8743

**Email:** purchasing@supsew.com

#### Section 2 - Hazards Identification

**Fatalness grade:** In accordance with Regulation (EC) No 1272/2008, the sample is divided into dangerous article.

**Invasion route:** Skin touch: Contact with the battery electrolyte may cause severe irritation and burns.

Eyes touch: Contact with the battery electrolyte may cause severe irritation and burns. Eye damage is possible.

Inhalation: Inhalation of vapors or fumes released due to heat or a large number of leaking may cause respiratory and eye irritation.

Ingestion: Swallowing is not anticipated due to battery size. Ingestion of battery contents may cause mouth, throat and intestinal burns and damage.

**Health hazards:** 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.

**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 3 –Composition/Information on Ingredient

Pure  Admixture

Composition:

Chemical Name	In % By Weight	CAS No.	Molecular Formula
Nickel	80	7440-02-0	Ni
Cobalt	3	7440-48-4	Co
Manganese	3	7439-96-5	Mn
Iron	12	7439-89-6	Fe
Potassium	2	7440-09-7	K

Abbreviation: CAS No. is Chemical Abstract Service Registry Number.

#### Section 4 - First Aid Measures

**Skin touch:** Remove contaminated clothes and rinse the skin with plenty of water. Get medical aid.

**Eyes touch:** Lifting the upper and lower eyelids, flush the eyes with plenty of water or saline water. Get medical aid.

**Inhalation:** Remove from exposure and move to fresh air immediately. Keep the respiratory tract smooth. Use oxygen if breathing is difficult. Get medical aid.

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**Ingestion:** Drink sufficient hot water or milk and induce vomiting. Get medical aid.

### Section 5 - Fire Fighting Measures

**Danger characteristic:** Batteries may burst and release hazardous decomposition products when exposed to a fire situation.

**Hazardous combustion products:** Carbon monoxide, carbon dioxide, metal oxide, Irritating fume, etc.

**Fire-Fighting method & media:** The staff must equipped with filtermask(full mask) or isolated breathing apparatus. The staff must wear the clothes which can defence the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible. Spraying water on the containers in the fireplace to keep them cool until finish extinguishment. Media: hazy water, foam, powder, CO<sub>2</sub>, sandy clay.

### Section 6 –Accidental Release Measures

**Emergency treatment:** If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. The preferred response is to leave the area and allow the batteries to cool and vapors to dissipate. Prevent the spillage to flow into restrictive space like the sewer and the drainage channel. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. With absorption agent or other inert materials to absorb leakage liquid.

### Section 7 - Handling and Storage

**Handling:** Avoid mechanical or electrical abuse. Do not short-circuit batteries. Don't crush or puncture the battery, or immerse in liquids. Do not open or put the battery in the fire, don't make it connect with metal or short the electric poles.

**Storage:** Store batteries in cool and dry places which is little temperature change. Avoid store in high temperature area, heating source. No expose to direct sunlight for long periods.

### Section 8 - Exposure Controls, Personal Protection

**Maximum admissible concentration:** No standard yet

**Monitoring Method:** /

**Engineering Control:** To supply with sufficient partial air exhaust.

**Respiratory Protection:** Wear self-contained breathing filtermask(full mask) if the density exceed in the air. Wear breathing apparatus under the condition of emergency rescue or evacuation.

**Eyes Protection:** Ware safety glass.

**Body Protection:** Wear rubberized fabric antigas clothes.

**Hands Protection:** Wear rubber gloves.

**Other Protections:** No smoking, dining and drinking water in the workplace. Keep good habit of hygiene.

### Section 9 - Physical and Chemical Properties

**Appearance:** Cylindrical

**Color:** Silver gray

**Odour:** Odorless

**Solubility:** Insoluble in water

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### Section 10 - Stability and Reactivity

**Stability:** Stable under normal temperature.

**Distribution of Ban:** strong oxidizer, strong acid, alkali

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

**Hazardous Polymerization:** No known significant effects or critical hazards.

**Hazardous Decomposition Products:** The battery may release irritative gas once the electrolyte leakage.

### Section 11 - Toxicological Information

**Acute Toxicity:** No information is available.

**Sub-acute and Chronic Toxicity:** No information is available.

**Irritation:** The liquid in the battery irritates.

**Sensitization:** The liquid in the battery may cause sensitization to some person.

**Mutagenicity:** No information is available.

**Carcinogenicity:** No information is available.

**Others:** Since the materials in this battery are sealed in the can, the potential for exposure to the components of the battery is negligible, when the battery is used as directed. However technical or electrical abuse of the battery may result in the release of battery contents.

### Section 12 - Ecological Information

**Eco-toxicity:** No information is available.

**Biodegradable:** No information is available.

**Non-biodegradable:** No information is available.

**Bioconcentration or biological accumulation:** No information is available.

**Other harmful effects:** None

### Section 13 - Disposal Considerations

**Nature of waste:** No data.

**Waste disposal methods:** Refer to National or Local regulations before handling. Disposal of the battery should be performed by permitted, professional disposal firms knowledgeable in National or Local regulations of hazardous waste treatment and hazardous waste transportation.

**Attention abandoned:** The battery should be completely discharged prior to disposal in order to prevent short circuit. The battery contains recyclable materials. It is suggested recycle.

### Section 14 - Transport Information

**Number of dangerous goods:** No data

**UN Number:** No data

**Packaging Mark:** No data

**Packaging Method:** No data

**Transport Attention:** According to International air transport association (IATA) dangerous goods regulations (54<sup>th</sup> Edition, 2013), the IMDG Code (inc Admit 34-08, 2008 Edition). The batteries should be securely packed and protected against short -circuits. The U.S. Department of transportation(DOT) requirement for shipping Nickel-Metal Hydride Batteries is Special

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Provision 130 which states: "Batteries, dry are not subject to the requirements of this subchapter only when they are offered for transportation in a manner that prevents the dangerous evolution of heat (for example, by the effective insulation of exposed terminals)." Examine whether the package of the containers are integrate and tight-closed or not before transport. No divulgence, no collapse, no precipitation or no damage during the course of transportation. Don't put the goods together with oxidizer and chief food chemicals. The transport vehicle and ship must be cleaned and sterilized otherwise it is not allowed to assemble articles. In transit should be anti-exposure, rain, anti-high temperature. Stopovers should be away from fire and heat sources. When transported by sea, the assemble place should keep away from bedroom and kitchen, and isolated from the engine room, power and fire source. Under the condition of Road Transportation, the driver should drive in accordance with regulated route, don't stop over in the residential area and congested area. Forbid to use wooden, cement for bulk transport.

### Section 15 - Regulatory Information

#### Regulatory Information:

ISO 11014-2009 Safety data sheet for chemical products - Content and order of sections.

Regulation (EC) No. 1272/2008 Classification, Labelling and Packaging of Substances and Mixtures.

The International Maritime Dangerous Goods (IMDG) Code (inc Amdt 35-10).

International Air Transport Association (IATA) Dangerous Goods Regulations, 54<sup>th</sup>, 2013.

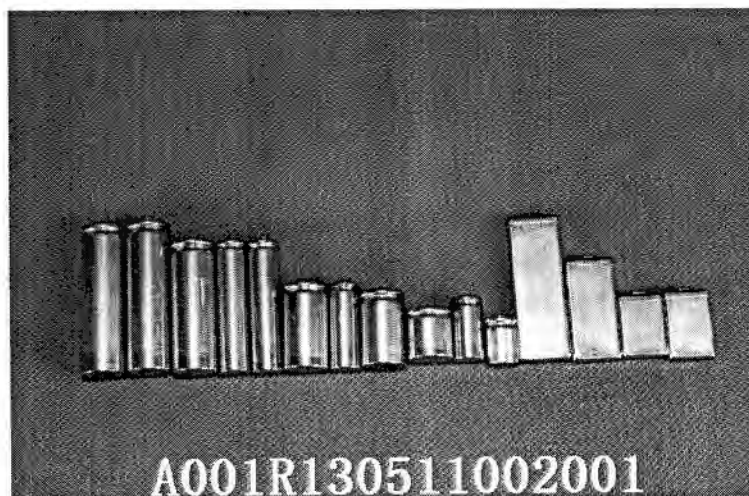
### Section 16 - Additional Information

The above information is based on the data of which we are aware and is believed to be correct as of the data hereof. 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.

#### -Note

- Photo is included

#### Photograph of Sample



Nickel-Metal Hydride Battery

\*\*\*End of Report\*\*\*