



MSDS

NO.: A001C110921022001A2

Date: Feb 07, 2012

Page 1 of 7

MSDS

Samples Name: NI-MH Battery

Model: /

Client Name: TMK POWER INDUSTRIES LTD.

Client Address: San-Jun Ind. Park, Hua-Wang Road, Da-Lang, Long-Hua Town, Shenzhen

Signed for and on behalf of
Shenzhen AOV Testing Technology Co., Ltd

Prepared by: Daisy
Yao Xiang Lan, Daisy
Report Clerk

Reviewed by: Lewis
Liu Lin Wen, Lewis
Laboratory Supervisor

Approved by: Jeewah
LV Jie Hua, Jeewah
Technical Director



MSDS

NO.: A001C110921022001A2

Date: Feb 07, 2012

Page 2 of 7

Material Safety Data Sheet

Section 1 - Chemical Product and Company Identification

Product Name: NI-MH Battery

Manufacture: TMK POWER INDUSTRIES LTD

Address: San-Jun Ind. Park, Hua-Wang Road, Da-Lang, Long-Hua Town, Shenzhen

Tel: 0755-27048122

Emergency Telephone: 0755-27048122

Fax: /

Email: liguang.1980@163.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 contact with battery electrolyte may cause burns and skin irritation.

Eyes contact: Contact with battery electrolyte may cause burns. Eye damage is possible.

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

Ingestion: Ingestion of battery contents may cause mouth, throat and intestinal burns and damage.

Health hazards: The chemical are contained in a sealed can. Risk of exposure occurs only if the battery is mechanically or electrically abused.

Environment hazards: Don't abandon the battery into environment, may cause water or soil pollution.

Burn & burst danger: Do not dispose of battery in fire and recharge battery-may explode. Do not short-circuit battery –may cause burns.

Section 3 –Composition/Information on Ingredient

Pure

Admixture

Composition:

Chemical Name	In % By Weight	CAS No.	EC No.	Molecular Formula
Nickel, Nickel Hydroxide	32	14332-32-2	/	NiH
Cobalt Oxide	3	1307-96-6	215-154-6	CoO
Potassium Hydroxide	4	1310-58-3	215-181-3	KOH
PP fiber Separator	8	9003-07-0	NA	(C ₂ H ₆) _n
Hydrogen absorbing alloy (Ni, La, Ce, Pr, Nd, Mn, Al, Co)	38	NA	NA	NA
Iron	10	7439-89-6	231-096-4	Fe
Nylon	3	63428-84-2	NA	NA
Other	2	NA	NA	NA

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

EC No. is European Inventory of Existing Commercial chemical Substances Number.

NA = Not apply.



MSDS

NO.: A001C110921022001A2

Date: Feb 07, 2012

Page 3 of 7

Section 4 - First Aid Measures

Skin contact: If the battery is leaking and the contained material contacts the skin, remove contaminated clothes quickly and rinse the skin with plenty of water at least 15 minutes. If irritation or pain persists, get medical aid at once.

Eyes contact: If the battery is leaking and the contained material contacts the eyes, flush the eyes with plenty of water or saline water at least 15 minutes. Get medical aid at once.

Inhalation: If the battery is leaking, remove to fresh air immediately. Keep the respiratory tract smooth. Use oxygen if available. Get medical aid.

Ingestion: If the battery is leaking and the contained material is ingested, rinse mouth and surrounding area with clear water at once. Get medical aid at once.

Section 5 - Fire Fighting Measures

Danger characteristic: Exposure to excessive heat can cause venting of the liquid electrolyte. Batteries may burst and release hazardous decomposition products when exposed to a fire situation.

Hazardous combustion products: CO, CO₂, Metal oxides, Irritating fumes

Fire-Fighting method & media: The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense 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. Spray water on the containers in the fireplace to keep them cool until finish extinguishment. Media: hazy water, foam, powder, CO₂, 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. Provide maximum ventilation. Avoid skin and eye contact or inhalation of vapors. Remove spilled liquid with absorbent and incinerate waste.

Section 7 - Handling and Storage

- Handling:**
1. Do not allow battery terminates to contact each other, or contact with other metals.
 2. Pack batteries in separate plastic bags so that the single batteries are not mixed together.
 3. Do not expose the battery to excessive physical shock or vibration.
 4. Do not immerse, throw, and wet a battery in water.
 5. Short-circuiting should be avoided. Short circuit will reduces the life of the battery and can lead to ignition of surrounding materials. Physical contact with to short-circuited battery can cause skin burn.
 6. The batteries should not be opened, destroyed or incinerate, since they may leak or rupture and release to the environment the ingredients that they contain in the hermetically sealed container.
 7. Place the cell beyond the child's reach. Take care when transport, prevent damaging the packing and container.
 8. Never apply battery into a airtight compartment or sealed container.
 9. Be sure to use the specified charger for battery, and follow the charging instructions correctly.
 10. Do not mix old and new batteries together, neither with Ni-Cd, dry batteries or another manufacturer's batteries. Differences in various characteristics may cause damage to batteries or product.

MSDS

NO.: A001C110921022001A2

Date: Feb 07, 2012

Page 4 of 7

- Storage:**
1. Batteries should be separated from other materials and stored in a noncombustible, well ventilated, sprinkler-protected structure with sufficient clearance between walls and battery stacks.
 2. Keep the sample in the cool, dry and well-ventilated place. Do not exposure to direct sunlight for long periods. Keep away from fire and heating sources. Don't keep the samples with oxidizer and acid.
 3. Keep batteries in original package until use and do not jumble them.
 4. Equip with relevant types and quantities of the extinguishment instruments. The storage place should be equipped with suitable shelter materials for divulgence handling.

Section 8 - Exposure Controls, Personal Protection

Maximum admissible concentration: No standard yet

Monitoring Method: /

Engineering Control: Keep away from heat and open flame. Supply with sufficient partial air exhaust. Store in a cool, dry place.

Respiratory Protection: Not necessary under conditions of normal use. Wear self-contained breathing filtermask if the density exceed in the air. Wear breathing apparatus under the condition of emergency rescue or evacuation.

Eyes Protection: Not necessary under conditions of normal use. Wear protective glasses if handling a leaking or ruptured battery.

Body Protection: Not necessary under conditions of normal use. Wear fireproofing, gas defense clothes in case of handling a leaking or ruptured battery.

Hands Protection: Not necessary under conditions of normal use. Wear chemical resistant rubber gloves if handling a leaking or ruptured battery.

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

Section 9 - Physical and Chemical Properties

Appearance: Steel Shell

Odour: Odourless

Flash Point: No specific data.

Boiling Point: No specific data.

Melting Point: No specific data.

Proportion: No specific data.

Acid Value: No specific data.

PH Value: No specific data.

Density: No specific data.

Permission of solvent inhalation: No specific data.

Ignition temperature: No specific data.

Solubility: Insoluble in water

Section 10 - Stability and Reactivity

Stability: Stable under normal temperature and pressure.

Distribution of Ban: strong oxidizer, strong acid and corrosives

Conditions to Avoid: Fire source, heating source, disassemble, short circuit, immerse in water or overcharge.



MSDS

NO.: A001C110921022001A2

Date: Feb 07, 2012

Page 5 of 7

Hazardous Polymerization: No specific data.

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 may irritate eyes and skin with any contact.

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: Don't abandon the battery into environment, may cause water or soil pollution.

Section 13 - Disposal Considerations

Nature of waste: /

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: 9

UN Number: /

Packaging Mark: /

Packaging Method: /

Transport Attentions: International air transport association (IATA) dangerous goods regulations (53rd Edition). Under the condition of Railway Transportation, assemble articles strictly according to Hazardous Goods Transport Rules of Railway Station. 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.



MSDS

NO.: A001C110921022001A2

Date: Feb 07, 2012

Page 6 of 7

The assemble place should keep away from bedroom and kitchen and the engine room, power and fire source should be isolated from the assemble place. 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.

International Maritime Organization (IMO), IMDG Code: Regulated as "Batteries, nickel-metal hydride, UN 3496", Special Provision 963:"...nickel-metal hydride cells or batteries shall be securely packed and protected from short circuit. They are not subject to other provisions of this Code provided that they are loaded in a cargo transport unit in a total quantity of less than 100Kg gross mass. When loaded in a cargo transport unit in a total quantity of 100Kg gross mass of more, they are not subject to other provisions of this Code except those of 5.4.1,5.4.3 and column (16) of the dangerous goods list in Chapter 3.2."

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.

International Air Transport Association (IATA) Dangerous Goods Regulations

The International Maritime Dangerous Goods (IMDG) Code.

Hazardous Goods Transport Rules of Railway Station

Section 16 - Additional Information

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier, nor any its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Note:

- This MSDS A001C110921022001A2 supersedes MSDS A001C110921022001A1 which is withdrawn.
- Photo is included.

MSDS

NO.: A001C110921022001A2

Date: Feb 07, 2012

Page 7 of 7

Photograph of Sample



NI-MH Battery

End of MSDS