Report No.: DBS20140303CE01

MSDS REPORT

NAME OF SAMPLE: Ni-MH Battery

CLIENT: TMK Power Industries Ltd.

CLASSIFICATION OF TEST: Commission test

Guangzhou MCM Certification and Testing Co., Ltd

General Information

Name of Sample:
Ni-MH Battery

Type:
Ni-MH 1.2V

Trade mark:
—

UN38.3 Test Report Number:
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Commissioner:
TMK Power Industries Ltd.

Commissioner address:
Building 07, District 22, Xialingpai Village, Dalang Street, Longhua New District, Shenzhen City

Manufacturer:
TMK Power Industries Ltd.

Manufacturer address:
Building 07, District 22, Xialingpai Village, Dalang Street, Longhua New District, Shenzhen City

Sample Receiving Date:
Mar. 04, 2014

Complete Date:
Mar. 11, 2014

Seal
Date of issue:Mar.12,2014

Approved by: Xu Hongbin Reviewed by: Liang Hongcheng Tested by: Fu Ziwen

Material Safety Data Sheet

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Name of Sample: Ni-MH Battery	**Type:** Ni-MH 1.2V
Company Name: TMK Power Industries Ltd.	**Address:** Building 07, District 22, Xialingpai Village, Dalang Street, Longhua New District, Shenzhen City
Zip code: 518109	**Fax:** 0755-81796580
E-mail: huangrf@tmk-battery.com	**Emergency Telephone:** 13923877053

SECTION 2 – HAZARDS IDENTIFICATION

Preparation hazards and classification:

When the battery is In extreme pressure deformation, high-temperature environment, overload, short-circuit condition, or disassemble the battery, can cause venting of the liquid electrolyte.

Apperance, Color, and Odor:

Solid object with no odor, no color.

Primary Route(s) of Exposure:

These chemicals are contained in a sealed stainless steel enclosure. Risk of exposure occurs only if the cell is mechanically, thermally or electrically abused to the point of compromising the enclosure. If this occurs, exposure to the electrolyte solution contained within can occur by Inhalation, Ingestion, Eye contact and Skin contact

Potential Health Effects:

ACUTE (short term): see Section 8 for exposure controls In the event that this battery has been ruptured, the electrolyte solution contained within the battery would be corrosive and can cause burns.

CHRONIC (long term): see Section 11 for additional toxicological data

Medical Conditions Aggravated by Exposure:

Not applicable

Reported as carcinogen:

Not applicable

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENT

Chemical Name	Molecular formula	CAS No.	Weight（%）
Nickel, Nickel Hydroxide	NiH	14332-32-2	33
Cobalt Oxide	CoO	1307-96-6	4
Potassium Hydroxide	KOH	1310-58-3	3
PP fiber Separator	$(C_2H_2)n$	9003-07-0	8
Hydrogen absorbing alloy(Ni La, Ce, Pr, Nd,Mn,AL,Co)	N/A	N/A	37
Iron	Fe	7439-89-6	10
Nylon	N/A	63428-84-2	3
Others	N/A	N/A	2

Abbreviation: CAS No. is Chemical Abstract Service Registry Number, N/ A= Not apply.

SECTION 4 – FIRST AID MEASURES

Eye

If the battery is leaking and the contained material contact the eyes, do not rub the eyes and flush the eyes with plenty of water or saline water at least 15 minutes, get medical aid at once.

Skin

If the battery is leaking and the contained material contact the skin, Remove contaminated clothes quickly and rinse the skin with plenty of water at least 15minutes, if irritation or pain persist ,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 ingest, rinse mouth and surrounding area with clear water at once .Get medical at once.

SECTION 5 – FIRE FIGHTING MEASURES

Danger characteristic:

Exposure to excessive heat can cause venting of the liquid electrolyte.

Hazardous combustion products:

Corrosive gas may be emitted during fire.

Fire-Fighting method& media

The stuff must equip with filtermask (full mask) or isolated breathing apparatus. The stuff must wear the clothes which can defense 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: plenty

of water , dry chemical powder or carbon dioxide .

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. Do not put the cell or battery into a fire or heat it. Do not solder the cell directly. Do not use or leave the cell or battery in a place near fire or heaters.

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 packing and container.

8. Do not connect the battery directly to an electric outlet or cigarette socket in a car.

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 batteries or product.

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(temperature:-20~30degree C humidity:45~85%). 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. charge the battery every 6 months to the amount specified by the manufacture, even if the battery is not used.

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 .

Other Protections:

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

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:
Physical state: solid .
Form: cylindrical or prismatic or prismatic(laminated)

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, external short circuit, crushes, deformation, high temperature above 100 degree C, direct sunlight and high humidity, immerse in water or overcharge.

Hazardous Polymerization:
No specific data.

Hazardous Decomposition Products:
N/A

SECTION 11 – TOXICOLOGICAL INFORMATION

Acute Toxicity:
N/A

Sub-acute and Chronic Toxicity:
N/A

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

Hazard Classification: Class 9

UN Number: 3496

Packaging Mark: /

Packaging: /

Transport Attentions: According to IATA DGR 55th Edition for transportation, assemble articles strictly according to Hazardous Goods Transport Rules of Railway Station , The batteries should be securely packed and protected against short-circuits. Examine whether the package of the containers are integrate and tighten closed before transport. Take in a cargo of them without falling, dropping, and breakage. Prevent collapse of cargo piles and wet by rain. The transport vehicle and ship must be cleaned and sterilized otherwise it is not allowed to assemble articles. During transport, the vehicle should prevent exposure, rain and high temperature. For stopovers, the vehicle 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.

International Maritime Organization (IMO), IMDG Code: Regulated as "Batteries, nickel-metal hydride, UN3496, Special provision 963: nickel-metal hydride cells or batteries shall be securely packed and protected from short circuit. They are not subject to other provision of this Code provide 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 provision of this Code except those of 5.4.1, 5.4.3and column (16) of the dangerous goods list in chapter 3.2".

SECTION 15 – REGULATORY INFORMATIO

Law 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, 55th Edition .

The International Maritime Dangerous Goods (IMDG) Code (inc Amdt 36-12).

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.

Sample Reference Photo

Model: **Ni-MH 1.2V**

Important

1. The test report is invalid without the official stamp and Paging seal of Guangzhou MCM Certification and Testing Co., Ltd.

2. Nobody is allowed to photocopy or partly photocopy this test report without written permission of Guangzhou MCM Certification and Testing Co., Ltd.

3. The test report is invalid without the signatures of Ratifier, Reviewer and Testing engineer.

4. The test report is invalid if altered.

5. Objections to the test report must be submitted to Guangzhou MCM Certification and Testing Co., Ltd. Within 15 days.

6. The test report is valid for the tested samples only.

7. As for the test result, “N” means “not applicable”, “P” means “pass” and “F” means “fail”.

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