McNair Technology Co., Ltd.

迈科科技有限公司

Material Safety Data Sheet for Ni-MH Battery(MSDS)

Section 1： Chemical Product and Company Identification

Chinese name of the chemical：镍氢电池 NI-MH AAA700mAh 1.2V English name of the chemical：Nickel Metal Hydride Battery NI-MH AAA700mAh 1.2V
Manufacturer's Name (生产商)：McNair Technology Co., Ltd （迈科科技有限公司）
Address:(地址)：Mcnair Industrial Estate，1888 West of MeiJing Road，DaLang Town，DongGuan City，GuangDong Province，CHINA （中国广东省东莞市大郎镇美景大道西 1888 号迈科工业园）
Telephone number(电话)/FAX number(传真): TEL:0086-769-83197555 FAX：0086-769-83195372
WEB(网址)： www.mcnair.com.cn

Section 2：Composition/Information on Ingredient

Important note: The battery should not be opened or exposed to heat because exposure to the following ingredients contained within could be harmful under some circumstances. The following information is provided for the user's information only.

Chemical Name	CAS NO.	wt%	MAC(mg/m3)/China	MAC(mg/m3)/USSR
Cobalt Oxide	1307-96-6	2～6	0.1	0.5
Nickel Hydroxide	12054-48-7	23～28	0.5	0.05
Hydrogen absorbing alloy	N.A	30～35	N.A	N.A
Potassium hydroxide（液态）	1310-58-3	< 2	N.A	0.5
Sodium hydroxide（液态）	1310-73-2	< 1	0.5	0.5
Lithium hydroxide（液态）	1310-66-3	< 1	N/A	N/A
Paper	N/A	< 1	N/A	N/A
Steel Casing	N/A	20～25	N/A	N/A
Plastic	N/A	< 1	N/A	N/A
Other	N/A	< 1	N/A	N/A
Total		100		

Notes: 1. Weight% listed is based on approximate percent of average weight of battery.

2. The components in this section may only represent a hazard if the integrity of the battery is compromised.

Section 3:Hazardous description

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 Absorption: No evidence of adverse effects from available data.

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

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

Carcinogenicity: Nickel has been identified by the National Toxicology Program (NTP) as reasonably anticipated to be a carcinogen. Cobalt has been identified by IARC as a 2B carcinogen.

Other Effects of Repeated (Chronic) Exposure: Chronic overexposure to nickel may result in cancer; dermal contact may result in dermatitis in sensitive individuals.

Medical Conditions Aggravated by Overexposure: A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure in unlikely to aggravate existing medical conditions.

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Section 4：First Aid Procedures

Swallowing: Do not induce vomiting. Seek medical attention immediately.

Skin: If the internal cell materials of an opened battery cell comes into contact with the skin, immediately flush with water for at least 15 minutes.

Inhalation: If potential for exposure to fumes or dusts occurs, remove immediately to fresh air and seek medical attention.

Eyes: If the contents from an opened battery comes into contact with the eyes, immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention.

Section 5：Fire fighting Measures

Extinguishing Media: Any class of extinguishing medium may be used on the batteries or their packing material.

Fire Fighting Procedures: Exposure to temperatures of above 100℃ can cause evaporation of the liquid content of the potassium hydroxide electrolyte resulting in the rupture of the cell. Potential for exposure to harmful fumes during fire; use self-contained breathing apparatus.

Section 6：Accidental Release Measures

steps to be Taken in case Material is Released or Spilled

If the battery material is released, remove personnel from area until fumes dissipate. Provide maximum ventilation to clear out hazardous gases. Wipe it up with a cloth, and dispose of it in a plastic bag and put into a steel can. The preferred response is to leave the area and allow the battery 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 Disposal Method

It is recommended to discharge the battery to the end, handing in the abandoned batteries to related department unified, dispose of the batteries in accordance with approved local,state,and federal requirements. Consult state environmental protection agency and/or federal EPA.

Section 7 – Handling and Storage

The batteries should not opened, destroyed or incinerate, since they may leak or rupture and release the ingredients that they contain in the hermetically sealed container to the environment.

Do not short circuit terminals, or charge the battery, forced over-discharge, throw to fire. Do not crush or puncture the battery, or immerse in liquids.

Precautions to be taken in handling and storing

Avoid mechanical or electrical abuse. Storage preferably in cool, dry and ventilated area, which is subject to little temperature change. Storage at high temperatures should be avoided.

Do not place the battery near heating equipment, nor expose to direct sunlight for long periods.

Other Precautions

Do not short or install with incorrect polarity.

Section 8 – Exposure Controls, Personal Protection

Respiratory Protection

In case of battery venting, provide as mush ventilation as possible. Avoid confined areas with venting batteries. Respiratory Protection is not necessary under conditions of normal use.

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Other Protective Clothing or Equipment

Not necessary under conditions of normal use.

Personal protection is recommended for venting batteries: Respiratory protection protective gloves, protective clothing and safety glass with side shields.

Section 9 –Physical and Chemical Properties

Nominal Voltage : 1.2 V/cell

External appearance: Silvery white metal shell

Relative Density (Water=1): N.A

Relative Vapor Density(Air=1): N.A

Solubility in Water: Insoluble

Flash Point: N.A

Lower Explosive Limit: N.A

Upper Explosive Limit: N.A

Section 10 – Stability and Reactivity

Stability

Stable for normal.

Conditions to Avoid

Heating, fire, mechanical abuse and electrical abuse.

Hazardous Decomposition Products

When exposed to fire or extreme heat, batteries may emit toxic fumes.

Section 11 – Toxicological Information

Inhalation, skin contact and eye contact are possible when the battery is opened. Exposure to internal contents, the corrosive fumes will be irritation to skin ,eyes and mucous membranes .Overexposure can cause symptoms of non-fibrotic lung injury and membrane irritation.

Section 12 – Ecological Information

When promptly used or disposed the battery does not present environmental hazard .When disposed, keep away from water, rain and snow .

Section 13 – Disposal Considerations

Appropriate Method of Disposal of Substance or Preparation

Dispose of the batteries in accordance with approved local, and federal requirements. Consult state environmental agency.

Section 14 – Transport Information

a) In general, all batteries in all forms of transportation (ground, air, ocean) must be packaged in a safe and responsible manner. Regulatory concerns from all agencies for safe packaging require that batteries be packaged in a manner that prevents short circuits and be contained in "strong outer packaging" that prevents spillage of contents. All original packaging for McNair nickel metal hydride batteries has been designed to be compliant with these regulatory concerns.

McNair nickel metal hydride batteries (sometimes referred to as "Dry cell" batteries)are not defined as dangerous goods under the IATA Dangerous Goods Regulations. ICAO Technical Instructions and the U.S. hazardous materials regulations (49 CFR). These batteries are not subject to the dangerous goods regulations as they are compliant with the requirements contained in the following special provisions.

Regulatory Body	Special Provisions
ADR	295-304,598
IMO	UN 3496 SP117 and SP963
UN	UN 3496
US DOT	49 CFR 172, 102 Provision 130
IATA	A199（56th edition 2015）

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

b) International Maritime Organization (IMO) IMDG Code regulated these products as UN 3496 BATTERIES,NIKEL METAL HYDRIDE, class 9 dangerous goods with Special Provision 117 and 963 assigned.

SP117
Only regulated when transported by sea.

SP963
Nickel-metal hydride button cells or nickel-metal hydride cells or batteries packed with or contained in equipment are not subject to the provisions of this Code.
All other 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 100 Kg gross mass. When loaded in a cargo transport unit in a total quantity of 100 Kg gross mass or 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 good list in Chapter 3.2.

The requirements of these sections are:

(1) dangerous goods transport documentation to accompany the shipment,
(2) the shipment must be described as "UN3496, BATTERIES, NICKEL-METEL HYDRIDE, CLASS 9" on the shipper's declaration for dangerous goods.
(3) the dangerous goods description must also be entered on the Dangerous Cargo Manifest and/or the detailed stowage plan in compliance with the IMDG Code requirements for shipboard documentation.

Section 15 – Regulatory Information

Law Information

《Dangerous Goods Regulation》
《Recommendations on the Transport of Dangerous Goods Model Regulations》
《International Maritime Dangerous Goods》
《Technical Instructions for the Safe Transport of Dangerous Goods》
《Classification and code of dangerous goods 》
《Occupational Safety and Health Act 》(OSHA)
《Toxic Substances Control Act 》(TSCA)

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《Consumer Product Safety Act 》(CPSA)
《Federal Environmental Pollution Control Act 》(FEPCA)
《The Oil Pollution Act 》(OPA)
《Superfund Amendments and Reauthorization Act Title III (302/311/312/313)》(SARA)
《Resource Conservation and Recovery Act 》(RCRA)
《Safety Drinking Water Act》(CWA)
《California Proposition 65》
《Code of Federal Regulations 》(CFR)
In accordance with all Federal, State and Local laws.

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.

MSDS Creation Date : Jan,9, 2017