MATERIAL SAFETY DATA SHEET

1. Chemical product

Name: Metal Hydride rechargeable battery.

Manufacturer: Camelion Battery Co. Ltd
Address: Unit 705-708, Cyber Timers Tower A, Tian'an Cyber Park, Shenzhen, China
Tel: 0755-83618088
Chemical System: Nickel- Metal Hydride
Nominal Voltage:1.2V/CELL
Designated for Recharge: Yes

2. Composition /information on ingredients:

CAS-No/EINECS NO.:Nickel hydroxide：12054-48-7

Cobalt oxide：11104-61-3

Potassium hydroxide：1310-58-3

Sodium hydroxide：1310-73-2

IMPORTANT NOTE: The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

Hazardous components

Item	%/W_t	TLV(ACGIH)	PEL(OSHA)
Aluminum	<2	10mg/m^3 TWA	15m g/ m^3 TWA (total dust) 5m g/ m^3 TWA (respirable fraction)
Cobalt as cobalt metal as cobalt oxide as cobalt hydroxide	2.5-6.0	0.02 mg/m^3 TWA (as Co)	0.1 mg/m^3 TWA (as Co)
Lithium Hydroxide	0-4	None established	None established
Nickel As nickel powder As nickel oxide As nickel hyfroxide	30-50	1.5 mg/m^3 TWA (as inhalable Ni) 0.2 mg/m^3 TWA (as inhalable Ni, insoluble compounds)	1 mg/m^3 TWA (as Ni)
Mischmetal Including: Lanthanum Cerium Neodymium Praseodymium	<15	10 mg/m^3 TWA (particulates not otherwise classified-inhalable) 3mg/m^3 TWA (particulates not otherwise classified-respirable)	15mg/m^3 TWA (particulates not otherwise regulated-total dust) 5mg/m^3 TWA (particulates not otherwise regulated-respirable fraction)

Potassium Hydroxide	<5	2 mg/m^3 Ceiling	None established
Sodium Hydroxide	0-4	2 mg/m^3 Ceiling	2 mg/m^3 TWA
Zinc As zinc metal As zinc oxide As zinc hydroxide	<3	10 mg/m^3 TWA (total dust: zinc oxide)	15mg/m^3 TWA (total dust: zinc oxide) 5 mg/m^3 TWA(respirable fraction : zinc oxide)
Manganese	<3	0.2 mg/m^3 TWA(as Mn)	5mg/m^3 Ceiling

3、Physical / Chemical Characteristics

Boiling Point N.A.
Specific Gravity (H2O=1) N.A.
Vapor Pressure (mm Hg) N.A.
Melting Point N.A.
Vapor Density (AIR=1) N.A.
Evaporation Rate (Butyl Acetate) N.A.
Solubility in Water N.A.
Appearance and Odor
Cylindrical Shape, odorless

4、 Hazard Classification

Classification N.A.

5、Reactivity Data

Stability Unstable Conditions to Avoid
Incompatibility (Materials to Avoid)
Hazardous Decomposition or Byproducts
Hazardous Polymerization May Occur Conditions to Avoid

6、First Aid Measures

First Aid Procedures
If electrolyte leakage occurs and makes contact with skin, wash with plenty of water immediately.
If electrolyte comes into contact with eyes, wash with copious amounts of water for fifteen (15) minutes, and contact a physician.
If electrolyte vapors are inhaled, provide fresh air and seek medical attention if respiratory irritation develops. Ventilate the contaminated area.

7、Fire and explosion hazard data

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

In case of fire where nickel metal hydride batteries are present, apply a smothering agent such as METL-X, sand, dry grand dolomite, or soda ash, or flood the area with water .A smothering agent will extinguish burning nickel metal hydride batteries. Water may not extinguish burning batteries but will cool the adjacent 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. Burning nickel metal hydride batteries can produce toxic fumes including oxides of nickel, cobalt, aluminum, manganese, lanthanum, cerium, neodymium, and praseodymium.

8、Heal health hazard data

Under normal conditions of use, the battery is hermetically sealed.

Ingestion: Swallowing a battery can be harmful.
Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.

If battery or open battery is ingested, do not induce vomiting or give food or drink. Seek medical attention immediately. CALL doctor collect.

Inhalation: Contents of an open battery can cause respiratory irritation. Hypersensitivity to nickel can cause allergic pulmonary asthma. Provide fresh air and seek medical attention.

Skin contact: Contents of an open battery can cause skin irritation and/or chemical burns. Nickel, nickel compounds, cobalt, and cobalt compounds can cause skin sensitization and an allergic contact dermatitis. Remove contaminated clothing and wash skin with soap and water. If a chemical burn occurs or irritation persists, seek medical attention.

Eye contact: Contents of an open battery can cause severe irritation and chemical burns. Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention.

Note: Nickel, nickel compounds, cobalt, and cobalt compounds are listed as possible carcinogens by International Agency for Research on Cancer (IARC) or National Toxicology Program (NTP).

9、Accidental Release or Spillage

Steps to Be Taken in Case Material is Released or Spilled
Batteries that are leakage should be handled with rubber gloves.

Avoid direct contact with electrolyte.
Wear protective clothing and a positive pressure Self-Contained Breathing Apparatus (SCBA).

10、Precautions for safe handling and use

Storage: Store in a cool, well ventilated area. Elevated temperatures can result in shortened battery life.

Mechanical containment: Never seal or encapsulate nickel metal hydride batteries.

Do not obstruct safety release vents on batteries. Encapsulation (potting) of batteries will not allow cell venting and can cause high pressure rupture.

Handling: Accidental short circuit for a few seconds will not seriously affect the battery. Prolonged short circuits. Prolonged short circuits will cause high cell temperatures which can cause skin burns. Sources of short circuits include jumbled batteries in bulk containers, metal jewelry, metal covered tables, or metal belts used for assembly of batteries in devices.

If soldering or welding to the battery is required, consult your Camelion Battery Company representative for proper precautions to prevent seal damage or short circuit.

Do not open battery. The negative electrode material may be pyrophoric. Should an individual cell from a battery become disassembled, spontaneous combustion of the negative electrode is possible. This is much more likely to happen if the electrode is removed from its metal container. Here can be a delay between exposure to air an spontaneous combustion.

Charging: This battery is made to be charged many times. Because it gradually loses its charge over a few months, it is good practice to charge battery before use. Use recommended charger. Improper charging can cause heat damage or even high pressure rupture. Observe proper charging polarity. Prohibit smoking, sparks, flames, etc. from battery charging area.

Labeling: If the Camelion label or package warnings are not visible, it is important to provide a package and/or device label stating:

WARNING: USE ONLY TITH SPECIFIED CHARGERS ACCORDING TO DEVICE MANUFACTURER'S INSTRUCTIONS. DO NOT OPEN BATTERY, DISPOSE OF IN FIRE OR SHORT CIRCUIT-MAY EXPLODE, LEAK OR GET HOT CAUSING PERSONAL INJURY. CAUTION: DO NOT USE IF CASE IS CRACKED. NONSPILABLE BATTERY.

Where accidental ingestion of small batteries is possible, the label should state:

WARNING: (1) KEEP AWAY FROM SMALL CHILDREN. IF SWALLOWED, PROMPTLY SEE DOCTOR. (2) CHARGE ONLY WITH SPECIFIED CJARGERS ACCORDING TO DEVICE MANUFACTURER'S INSTRUCTON. DO NOT OPEN BATTERY, DISPOSE OF IN FIRE, PUT IN BACKWARDS, MIX WITH OTHER BATTERY TYPES OR SHORT CIRCUIT-MAY EXLODE, LEAD OR GET HOT CAUSING PERSONAL INJURY.

11、Ecological Information

N.A

12、Disposal Method

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

13、Special protection information

Ventilation requirements: Not necessary under normal conditions.
Respiratory protection: Not necessary under normal conditions. A respirator should be worn during reclamation operations.
Eye protection: Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.
Gloves: Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery.
Open battery storage: Battery should not be opened. Should a cell become disassembled, the electrode should be stored in a fireproof cabinet, away from combustibles.

14、Transport Information

UN number： UN3496
Class： 9 Miscellaneous dangerous substances and articles
Packing group: Void
NiMH batteries are considered to be "Dry cell" batteries and are unregulated for purposes of transportation by the U.S. Department of Transportation (DOT), International Civil Aviation Administration (ICAO), International Air Transport Association (IATA) and International Maritime Dangerous Goods Regulations (IMDG). The only DOT requirement for shipping these batteries is special 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). According to IATA regulation 59th edition 2018 that batteries being transported by air must be protected from short-circuiting and protected from movement that could lead to short-circuiting. Ni-MH batteries comply with Special Provisions A199 under the IATA.

15、Regulatory Information

Symbol: N/A

16、Other information

The information on this Material Safety Date Sheet (MSDS) was obtained form current and reputable sources. However, the data is provided without any warranty; expressed or implied, regarding its correctness or accuracy. It is the user's responsibility to assume liability on loss, injury, damage, or expense resulting from improper use of this product. Any previous MSDS of this product mentioned above are hereby replaced with this new document. We urge you to make this information available as appropriate in your organization and to any others with whom you arrange to handle this product.