

The Source of Electric Power

MINAMOTO®

MINAMOTO BATTERY (HK) LTD.

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NiMH Material Safety Data Sheet

Product Name: Nickel Metal Hydride Battery

Trade Name: Minamoto Battery (HK) Ltd.

Chemical Systems: Nickel Metal Hydride

Designed for Recharge: Yes

MSDS Reference No.: UH001

Issue day:

1. MANUFACTURER INFORMATION

Minamoto Battery Ltd.
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2. HAZARDOUS INGREDIENTS

IMPORTANT NOTE:

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

MATERIAL OR INGREDIENTS	% W. t.
Nickel	15-50
as nickel hydroxide (CAS# 12054-48-7)	
nickel oxide (CAS# 1313-99-1)	
nickel powder (CAS# 7440-02-0)	
Potassium Hydroxide (CAS# 1310-58-3)	0-6
Cobalt	2.5-6.0
as cobalt metal (CAS# 7440-48-4)	
cobalt oxide (CAS# 1306-19-0)	
cobalt hydroxide (CAS# 21041-93-0)	
Sodium Hydroxide (CAS# 1310-73-2)	0-4
Zinc	< 3
as zinc metal (CAS# 7440-66-6)	
zinc oxide (CAS# 1314-13-2)	
zinc hydroxide (CAS# 20427-58-1)	
Mercury (CAS# 7439-97-6)	0-0.0005
Lead	0-0.0005
as lead metal (CAS# 7439-92-1)	
lead oxide (CAS# 1317-36-8)	
Cadmium	<0.01
as cadmium metal (CAS# 7440-43-9)	
cadmium oxide (CAS# 1306-19-0)	
cadmium hydroxide (CAS# 21041-95-2)	

3. HAZARDS IDENTIFICATION

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.

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 if 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.

4. FIRST AID MEASURES

Eye contact: Flush the eyes with plenty of clean water for at least 15 minutes immediately, without rubbing. Take a medical treatment. If appropriate procedures are not taken, this may cause an eye irritation.

Skin contact: Wash this contact areas off immediately with plenty of water and soap. If appropriate procedures are not taken, this may cause sores on the skin.

Inhalation: Remove to fresh air immediately. Taken a medical treatment.

5. FIRE –FIGHTING MEASURES

In case of fire, it is permissible to use any class of extinguishing medium on these batteries or their packing material. Cool exterior of batteries if exposed to fire to prevent rupture. Fire fighters should wear self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

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 ground 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 and control the spread of fire. Burning batteries will burn themselves out. Virtually all fires involving nickel metal hydride 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.

7. HANDLING AND STORAGE

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. However, this battery is capable of delivering very high short circuit currents. 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, and metal covered tables or metal belts used for assembly of batteries into devices.

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. There can be a delay between exposure to air and 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ventilation Requirements:

Not necessary under normal conditions.

Respiratory Protection:

Not necessary under normal conditions.

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.

9. Physical and Chemical Properties

The chemicals mentioned in substance identification are contained in a hermetically sealed battery can. Under conditions of normal use, the chemicals will not be released.

10. STABILITY AND REACTIVITY

Since batteries utilize a chemical reaction they are actually considered a chemical product.

As such, battery performance will deteriorate over time even if stored for a long period of time without being used. In addition, the various usage conditions such as charge, discharge, ambient temperature etc are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage.

11. TOXICOLOGICAL INFORMATION

Ingestion of a battery can be harmful. For US call The National Capital Poison Control Center (1-800-222-1222) day or night- for advice and follow-up. For other countries please contact the local Tox Centers.

12. ECOLOGICAL INFORMATION

Under normal condition of use, the battery is hermetically sealed and does not release chemicals listed in substance identification. It does not pose a physical or health risk to users.

13. DISPOSAL METHOD

Dispose of batteries according to government regulations.

14. TRANSPORTATION INFORMATION

MINAMOTO batteries are considered to be 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, 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). As of 1/1/97 IATA requires that batteries being transported by air must be protected from short-circuiting and protected from movement that could lead to short-circuiting.

15. REGULATORY INFORMATION

Special requirement be according to the local regulatory.

16. OTHER INFORMATION

The data in this Material Safety Data Sheet relates only to the specific material designated herein.