

Nickel Metal Hydride Battery Fact Sheet

For NiMH Cells or Battery Packs



HAZARDS

This nickel metal hydride battery is an electrochemical device used to store electrical energy. The negative plates are composed of a nickel metal hydride alloy. The positive plates use a nickel hydroxide mixture. Each cell uses a potassium hydroxide liquid mixture for the electrolyte and is enclosed in a stainless steel case. The battery is capable of storing a substantial quantity of electrical energy, and may cause electrical shock, fire or injury.

Under normal conditions of use, the risk of exposure to hazardous components is minimal. If the cells become damaged due to mechanical failure or fire, contact with hazardous materials is possible.

Do not exceed manufacturer's recommendations for charging or use battery for an application for which it was not specifically designed. Battery cell contents may be under pressure. Handle battery carefully to avoid physical damage or electrically shorting terminals. Avoid contact to the battery with acids and oxidizers. Do not smoke in the area where batteries are being charged, stored or tested. Avoid charging batteries in areas where hydrogen gas can accumulate. Use local exhaust ventilation to maintain concentrations of hydrogen below the lower explosive limit (LEL). Ensure proper ventilation is present during battery disassembly to control occupational exposure to battery component particulate and electrolyte mist and vapors.

Store in a cool dry place less than 80C. Do not stack battery directly on another battery. Do not store batteries on electrically conductive surfaces.

FIRST AID

Electrical Shock: In the event of individual electric shock, do not touch the person with bare hands while he or she is still in contact with the battery. Use an object that does not conduct electricity to break contact or push person away from the battery. Check for signs of circulation, such as normal breathing, coughing, or movement in response to stimulation. Contact the emergency medical system immediately. If necessary, start cardiopulmonary resuscitation (CPR) if the person stops breathing.

Decomposition Products: Battery may emit electrolyte or hydrogen gas during overcharge, overdischarge, or exposure to high temperatures.

Cell/Electrolyte Mixture: The following actions are recommended if direct contact occurs with electrolyte mixture due to damage of battery case or cells:

- Inhalation** : High vapor concentrations may cause severe respiratory tract irritation. In case of inhalation of electrolyte mist or metal dust, remove from exposure to fresh air. If necessary, give oxygen and seek medical attention. If particulate has been swallowed and victim is conscious, induce vomiting. Seek medical treatment immediately.
- Eye contact** : Contact with electrolyte causes severe eye burns. May cause irreversible eye injury and blindness. Exposure to metal particulate may cause irritation to eye tissue. In the event of contact with electrolyte, irrigate eyes with water for at least 15 minutes occasionally lifting upper and lower eyelids. Cover burned area to prevent infection. Seek medical treatment immediately.
- Skin contact** : Electrolyte causes skin burns. Exposure to particulate may cause dermatitis. In the event of contact with electrolyte immediately rinse contact area with copious quantities of clean water. Remove contaminated clothing. Provide first aid to burned area to prevent infection. Seek medical treatment immediately.
- Ingestion** : Ingestion of electrolyte will cause burns to mouth and perforation of the digestive tract. Severe digestive tract burns will be accompanied by abdominal pain, vomiting and possible death. In case of ingestion of electrolyte do NOT induce vomiting. Seek medical treatment immediately.

FIRE FIGHTING

- Suitable Extinguishing Media** : *Intact Battery*: Water or powder-type ABC extinguisher
- Unsuitable Extinguishing Media** : Do not use water or carbon dioxide on exposed negative plates.
- Fire/Explosion Response** : Overcharging the battery can create excessive heating which may release hydrogen gas. The battery is equipped with a safety vent mechanism to prevent an explosion. However an explosion could occur due to the accumulation of hydrogen gas venting from the battery in concentrations exceeding the lower explosive limit.
- In the event of a fire, evacuate from area all personnel who are not wearing personal protective equipment. Intact batteries that have overheated should be cooled with water liberally applied over all surfaces or powder-type ABC extinguisher. If there are no readily available large amounts of water, use dry sand instead; as the application of only a small amount of water may temporarily act as an accelerant. Continue to monitor the battery for a recurrence of fire until all components have cooled to room temperature.
- Firefighting Equipment** : Use NIOSH-approved full-face Self-Contained Breathing Apparatus (SCBA) with full protective gear.

ACCIDENTAL RELEASE

- Personal Precautions** : Battery cells are sealed against electrolyte loss. Under normal handling, spillage of electrolyte will not occur. Battery may emit electrolyte or hydrogen gas during periods when charging or discharging rates exceed manufacturer's recommendations. During these times move battery to well-ventilated area to prevent hydrogen gas accumulation. Avoid skin and eye contact with electrolyte and breathing electrolyte mist (see Personal Protection below).
- Environmental Precautions** : If the battery is stored for very long time periods, electrolyte and/or metal materials may leak. Prevent entry of cell/electrolyte mixture into drains, surface water, or groundwater.
- Spill or Leak Procedures** : If electrolyte leaks or spills, contain and neutralize spill. Dispose of spilled material in accordance with applicable regional, national, state/provincial and local laws and regulations.

PERSONAL PROTECTION

- Respirator** : None required during normal use. Use an appropriate NIOSH approved respirator if airborne dust or mist concentrations exceed the applicable exposure limit.
- Eye/face protection** : Wear ANSI approved safety glasses with side shields during normal use. Wear OSHA approved face shield with safety glasses when exposure to electrolyte is possible.
- Gloves** : Wear nitrile butyl rubber, neoprene, or PVC gloves when exposure to electrolyte is possible.
- Foot protection** : Wear steel toe shoes or boots.

TRANSPORTATION

US DOT

UN No. 3496 (for vessel transport only)

Proper Shipping Name : Batteries, nickel-metal hydride (by vessel)
Batteries, dry, sealed, n.o.s, (all modes, except by vessel)
Class : 9
Special Provision : 130

ICAO/IATA

Special Provision : A123

IMO-IMDG UN3496 (No packaging group)

Packing Instruction : SP963
Special Provision : 117, 963

INTERNATIONAL ROAD (Larger European/Mediterranean area only)

Class : 9
Special Provision : NiMH not subject to ADR

TRANSPORT CANADA

UN No. 2800

Proper Shipping Name : Batteries, wet, non-spillable, electric storage
Class : 8
Special Provision : 39

DISPOSAL

Recover or recycle battery at end of use or end of life. The battery contains recyclable material and recycling is encouraged over disposal. Regional, national, state/provincial and local laws must be followed in the handling, storing, transportation and final disposition of the battery and battery components. Disposal should be in accordance with applicable regional, national, state/provincial and local laws and regulations. Local regulations may be more stringent than regional or national requirements. Damaged battery or cell should be stored in ventilated area away from flammable material, heat or open flames. Dispose or recycle in a sealed, non-conductive plastic bag, drum or container.