

PRODUCT NAME: NICKEL-CADMIUM BATTERIES	DATE: January 1, 2007
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**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.
Cadmium as Cadmium Metal (CAS # 7440-43-9) Cadmium Oxide (CAS # 1306-19-0) Cadmium Hydroxide (CAS # 21041-95-2)	8-22
Cobalt as Cobalt Metal (CAS # 7440-48-4) Cobalt Oxide (CAS # 1307-96-6) Cobalt Hydroxide (CAS # 21041-93-0)	1-2
Lithium Hydroxide (CAS # 1310-65-2)	0-1
Nickel as Nickel Metal (CAS # 7440-02-0) Nickel Oxide (CAS # 1313-99-1) Nickel Hydroxide (CAS # 12054-48-7)	20-30
Potassium Hydroxide (CAS # 1310-58-3)	0-5

**FIRE AND EXPLOSION HAZARD DATA**

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

In case of fire, it is permissible to use any class of extinguishing medium on these batteries or their packing materials. Cool exterior of batteries if exposed to fire to prevent rupture.

Fire fighters should wear self-contained breathing apparatus. Nickel-Cadmium batteries involved in a fire can vent and produce toxic fumes including nickel, nickel oxide, cadmium, cadmium oxides, and cobalt oxides.

**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. Contents include toxic cadmium compounds that can cause excessive salivation, choking, nausea, persistent vomiting, diarrhea, abdominal pain, dizziness, faintness, unconsciousness, and possible liver and kidney injury.

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

**INHALATION:** Contents of an open battery can cause respiratory irritation. Cadmium oxide fumes can cause metal fume fever. 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. Cobalt, cobalt compounds, nickel and nickel 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.

## PRECAUTIONS FOR SAFE HANDLING AND USE

**STORAGE:** Store in a cool, well-ventilated area. Elevated temperature can result in shortened battery life.

**MECHANICAL CONTAINMENT:** Do not obstruct safety release vents on batteries. Encapsulation 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 circuits. Prolonged short circuits will cause high cell temperatures that 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.

If soldering or welding to the battery is required, use of tabbed batteries is recommended.

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. That 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.

## SPECIAL PROTECTION INFORMATION

**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.

## TRANSPORT INFORMATION

The product described is not covered by the international guidelines for the transport of dangerous substances.

UN Hazard CLASS: N/A  
UN Number: N/A

This is to certify that the above mentioned products are categorized as "nonspillable wet electric storage battery" according to Code of Federal Regulation (CFR) Title 49 (revised as of Oct. 1, 2001 issued by Department of Transportation) and exempted from all requirements for Hazardous Materials under the following conditions [CFR 49, Part 173, Section 159, Paragraphs (d)]:

- 1) The battery is protected against short circuit and securely packaged.
- 2) The battery is capable of withstanding the following two tests without leakage of battery fluid from the battery:
  - a. Vibration test
  - b. Pressure differential test

## ADDITIONAL INFORMATION

This Material Safety Data Sheet is supplied for informational purposes only. The information and recommendations contained herein have been compiled from sources believed to be reliable and represent current opinion on the subject. No warranty, guarantee, or representation is made by the manufacturer and/or the supplier as to the absolute correctness or sufficiency of any representation contained herein and the manufacturer and/or the supplier assumes no responsibility in connection therewith, nor can it be assumed that all acceptable safety measures are contained herein, or that additional measures may not be required under particular or exceptional conditions or circumstances.