

# MATERIAL SAFETY DATA SHEET

Moixa Energy

AP09 Archer Street Studios,

10 – 11 Archer St,

London, W1D 7AZ, UK

Date of Preparation: 11/02/06

Telephone No.: +44 (0)207 734 1474

[www.usbcell.com](http://www.usbcell.com)

In case of emergency contact:

Technical Support at: CHEMREC on

1-800-262-8200

## Section I - Product Identification

Product Group Name: USBCELL

Nominal Voltage: 1.2V

Chemical System: Nickel/Metal Hydride

Designated for Recharge:  Yes  No

Applicable product lines:

ALL including MXAA01, MXAA02

## Section II - Hazardous Ingredients

**The products referenced here in are exempt articles and are NOT subject to the OSHA Hazard Communication Standard requirement. This sheet is provided as a service to our customers.**

The product is a manufactured article as described in 29 CFR 1910.1200, as such, is not subject to the OSHA Hazard Communication Standard requirement of a material safety data sheet.

The product consists of electronic charging circuitry affixed to a Ni-MH battery cell. The battery cell is contained in a hermetically-sealed case, designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, hazardous materials are fully contained inside the battery cell. The battery cell casing should not be breached or exposed to heat.

In the event of a cell casing breach the following ingredients contained maybe released. These ingredients maybe harmful under certain circumstances. The following information is provided for the user's information only.

Chemical Name	CAS NO.
Nickel (powder)	7440-020-0
Nickel hydroxide	12054-48-7
Cobalt	7440-48-4
Manganese	7439-96-5
Lanthanum	7439-96-5
Cerium	7439-91-0
Neodymium	7440-00-8
Potassium hydroxide	1310-58-3

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Sodium hydroxide	1310-73-2
Lithium hydroxide	1310-65-2

## Section IV - Fire and Explosion Hazard Data

**Extinguishing Media:** Any class of extinguishing medium may be used on the batteries or their packing material. The major fire and initial ignition risk is the battery packaging not the USBCELL themselves.

If you use water, use enough to smother the fire. Using an insufficient amount of water could possibly make the fire worse.

**Special Fire Fighting Procedures:** Exposure to temperatures of above 212°F can cause venting of the liquid electrolyte. Burning these batteries will generate toxic fumes. Fire fighters should use self-contained breathing apparatus.

Internal shorting could also cause venting of the electrolyte. There is potential for exposure to iron, nickel, cobalt, rare earth metals (cerium, lanthanum neodymium, and praseodymium), manganese, and aluminum fumes during fire; use self-contained breathing apparatus.

### Effects of a Single (Acute) Overexposure:

**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 is unlikely to aggravate existing medical conditions.

## Section V - Emergency and First Aid Procedures

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

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

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**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 without rubbing and seek medical attention immediately.

## Section VI - Reactivity Data

The batteries are stable under normal operating conditions. Hazardous polymerization will not occur.

**Hazardous decomposition products:** oxides of nickel, cobalt, manganese, lanthanum, and cerium.

**Conditions to avoid:** heat, open flames, sparks, and moisture.

**Potential incompatibilities (i.e., materials to avoid contact with):** The battery cells are encased in a non-reactive packaging; however, if the container is breached, avoid contact of internal battery components with acids, aldehydes, and carbamate compounds.

## Section VII - Spill and Leak Procedures

The hazardous battery fluid is contained within a hermetically-sealed case, which is unlikely to be breached under any normal handling conditions.

Due to the nature of the battery packaging leaks in a small number of cells is unlikely to be noticed during normal handling as the internal battery fluid will be contained or absorbed within the packaging. If the USBCELL is exposed to any kind of abnormal handling or abuse examine the packaging carefully for signs of leakage.

If the casing is breached causing a leak don protective clothing that is impervious to caustic materials and absorb or pack spill residues in inert material. Dispose in accordance with applicable state and federal regulations.

## Section VIII - Safe Handling and Use (Personal Protective Equipment)

No special equipment is required for handling in normal use.

## Section IX- Precautions for Safe Handling and Use

**Storage:** Store in a cool place, but prevent condensation on cell or battery terminals. Elevated temperatures may result in reduced battery life. Optimum storage temperatures are between -31°F and 95°F.

**Mechanical Containment:** If there are special encapsulation or sealing requirements, consult Moixa Energy Ltd. about possible cell hazard precautions or limitations.

**Handling:** Accidental short circuit will bring high temperature elevation to the battery as well as shorten the battery life. Be sure to avoid prolonged short circuit since the heat can burn attendant skin and even rupture of the battery cell case.

Batteries packaged in bulk containers should not be shaken. Metal covered tables or belts used for assembly of batteries into devices can be the source of short circuits; apply insulating material to assembly work surface.

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**Charging:** This battery is designed for recharging. A loss of voltage and capacity of batteries due to self-discharge during prolonged storage is unavoidable. Charge battery before use. It is recommended that the USBCELL be recharged in a powered USB port. If a USB port is not available and a Ni-MH battery charger is used observe the specified charge rate since higher rates can cause a rise in internal gas pressure which may result in damaging heat generation or cell rupture and/or venting.

**Labeling:** If normal label warnings are not visible, it is important to provide a device label stating:

**CAUTION:** Do not dispose in fire, mix with other battery types, charge above specified rate, connect improperly, or short circuit, which may result in overheating, explosion or leakage of cell contents.

## Section X - Recycling and Disposal

Moixa Energy encourages battery recycling. The USBCELL contains a Nickel Metal Hydride battery which is not defined by the federal government as hazardous waste and are safe for disposal in the normal municipal waste stream. Exception: California, which requires these batteries to be disposed of in accordance with the California Universal Waste Rules.

These batteries however do contain recyclable materials. Please contact Moixa Energy for a preferred recycling route in your area. A website for information is provided at [www.usbcell.com/recycling](http://www.usbcell.com/recycling)

DO NOT INCINERATE or subject battery cells to temperatures in excess of 212°F. Such treatment can cause cell rupture.

## Section XI – Transportation

The USBCELL rechargeable Ni-MH batteries are considered to be "dry cell" batteries and are not subject to dangerous goods regulation for the purpose of transportation by the U.S. Department of Transportation (DOT), the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA) or the International Maritime Dangerous Goods regulations (IMDG). The only DOT requirement for shipping Nickel Metal Hydride 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).*" IATA requires that batteries being transported by air must be protected from short-circuiting and protected from movement that could lead to short-circuiting. The International Maritime Dangerous Goods Code (IMDG) regulate them for ocean transportation under Special provision 304 which says "*Batteries, dry, containing corrosive electrolyte which will not flow out of the battery if the battery case is cracked are not subject to the provisions of this Code provided the batteries are securely packed and protected against short-circuits. Examples of such batteries are: alkali-manganese, zinc carbon, nickel metal hydride and nickel-cadmium batteries.*"

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