Moltech Power Systems - Material Safety Data Sheet

Product: Nickel Cadmium Sealed Cell Battery

Supplier Information

Moltech Power Systems (UK) inc.
Unit 20 Loomer road,
Chesterton,
Newcastle-under-Lyme
Staffordshire
England
ST5 7LB
Tel +44 (0) 1782 566622

Hazardous Ingredients

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

Material or Ingredient	PEL (OSHA)	%/wt
Cadmium (as Cadmium metal, Cadmium oxide, Cadmium hydroxide)	5mg/m^3 (OSHA)	13-22
Cobalt (as Cobalt metal, Cobalt oxide, Cobalt hydroxide)	0.1mg/m^3 (OSHA)	0.5-2
Nickel (as Nickel metal, Nickel oxide, Nickel hydroxide)	1mg/m^3 (OSHA)	20-32
Potassium Hydroxide	2mg/m^3 (OSHA)	0-4
Sodium Hydroxide	2mg/m^3 (OSHA)	0-4

Fire & Explosion Hazard Data

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

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 oxides, Cadmium, Cadmium oxides, and Cobalt oxides.

Health Hazard Information

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 to mouth, oesophagus and gastrointestinal tract. Contents include toxic cadmium and cadmium compounds which can cause excessive salivation, choking, nausea, persistent vomiting, diarrhoea, abdominal pain, dizziness, faintness, unconsciousness, and possible liver and kidney injury.
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 sensitisation 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.

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

Precautions For Safe Handling & Use

Storage	Store in a cool, well-ventilated area. Elevated temperatures can result in shortened battery life.
Mechanical Containment	If potting or sealing the battery in an airtight or watertight container is required, consult your Moltech representative for precautionary suggestions. Batteries normally evolve hydrogen which, when combined with oxygen from the air, can produce a combustible or explosive mixture unless vented. If such a mixture is present, short circuits, high temperature, or static sparks can cause an ignition. 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 jewellery, and metal covered tables or metal straps used for assembly of batteries into devices. If soldering or welding to the battery is required, use of tabbed batteries is recommended. If this cannot be done, consult your Moltech 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. 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.
Disposal	Contact your local authority for advice on disposal of this product.
Additional Information	Please contact your local Moltech Power Systems representative or call the number shown on the first page of this document and ask to speak to the technical department.

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 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.

Special Protection Information

The transportation of NiCd dry cell batteries supplied by Moltech power Systems is not regulated by the U.S. department of Transportation or major international regulatory bodies.

End.