

# MATERIAL SAFETY DATA SHEET

Date : Jan/01/2011  
File No.: JDT-NM52-002

## 1. Identification of the substance/preparation and of the company/undertaking

Identification of the product : NM70AAAQ, NM120AAAL, NM200AAAT, NM230AAAT, NM330AAAK, NM500AAAK, NM1000AAA, NM300AAL, NM400AAT, NM700AAK, NM1200AAH, NM2500AA, NM1800AAF, NM1100AN, NM2000AH, NM2100A, NM3800AF, NM18670, NM2000SCH, NM3000SC, NM3500SCE, NM4500C, NM3500DN, NM9000D, NM13000F

Brand name : CELLINE  
Product name : NiMH Rechargeable Battery  
Chemical System: Nickel Metal Hydride  
Model: Cylindrical Type Cells for battery pack assembly.  
Designated for RECHARGE ? **X Yes \_No**  
Supplier identification  
Company: Jade-Technologie.  
Contact for information: 3, rue de Longjumeau, 91300 Massy  
+33 1 60 11 61 59

Emergency telephone No. **France, INRS Orfila: +33 1 45 42 59 59**  
**USA and Canada, CHEMTREC: +1-800-424-9300**  
**Outside: +1-703-527-3887**

## 2. Composition/information on ingredients

Ingredient	Percent	CAS Index No./EC No.	TLV	Symbol
Aluminium	<2%	7429-90-5	10mg/m3 TWA	Al
Cobalt	2-6%	7440-48-4 1307-96-6 21041-93-0	0.02mg/m3 TWA	Co
Manganese	<3%	7439-96-5 7440-02-0	0.2mg/m3 TWA	Mn
Nickel	20-50%	1313-99-1 12054-48-7	1.5mg/m3 TWA inhalable 0.2mg/m3 TWA insoluble	Ni
Zinc	<3%	7440-66-6 1314-13-2 20427-58-1	10mg/m3 TWA	Zn
Mischmetal	<13%	7439-91-0 7440-45-1 7440-00-8 7440-10-0	10mg/m3 TWA	
Lithium Hydroxide	0-4%	1310-65-2	N/A	
Potassium Hydroxide	<7%	1310-58-3	N/A	
Sodium Hydroxide	0-4%	1310-73-2	N/A	
Steel	15-25%	7439-89-6		Fe
Paper, plastic, other	Balance		N/A	

## 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.
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.
Eye Contact:	Contents of an open battery can cause severe irritation and chemical burns.
Note:	Nickel, nickel compounds, cobalt and cobalt compounds are listed as possible carcinogens by the International Agency for Research on Cancer (IARC) or National Toxicology Program (NTP)

---

#### 4. First aid measure

---

After inhalation contact:	In case of thermal decomposition or inhalation of electrolyte mist or metal dust, remove from exposure to fresh air. If necessary give oxygen. Get medical attention.
After skin contact:	Remove contaminated clothes and shoes immediately. Immediately wash extraneous matter or contact region with soap and plenty of water.
After eye contact:	Do not rub eyes. Immediately flush eyes with water continuously for at least 15 minutes. Seek medical attention.
After ingestion contact:	In case of ingestion of electrolyte DO NOT induce vomiting. If victim is conscious and alert give 2-4 cup of milk or water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

---

#### 5. Fire-fighting measure

---

Suitable Extinguishing Media:	Pack not breached:	Water spray and fire foam.
	Pack breached, no exposed plates:	Water spray and fire foam.
	Pack breached, exposed plates:	Class D fire extinguisher, METL-X
Unsuitable Extinguishing Media:	Pack breached, exposed plates:	Water, Carbon Dioxide
Products of Combustion:	Oxides of carbon, metal; dense, toxic smoke; intense heat.	
Protection of Firefighters:	Do not enter fire area without proper protection including self-contained breathing apparatus and full protective equipment. Fight fire from a safe distance and a protected location due to the potential of hazardous vapors and decomposition products.	
Special Fire Fighting Procedures:	If the battery pack is being charged turn off electric power. In the event that the pack has been breached exposing electrode plates, monitor the area for a reoccurrence of the fire until all components have cooled to ambient temperature. Immediately cover the exposed components in a water bath to prevent spontaneous combustion of the plate materials.	

---

#### 6. Accidental release measures

---

Spill or Leak:	Modules inside the battery pack are sealed against electrolyte loss. Under normal handling spillage of alkali electrolyte will not occur. Battery may emit electrolyte or hydrogen gas if charging or discharging rates exceed manufacturer's recommendations or if pack has been breached.
Methods for Containment:	Move battery pack to well ventilated area to prevent hydrogen gas accumulation, if electrolyte leaks or spills, neutralize with a weak acid such as vinegar or citric acid before proper disposal. In the event of accumulated electrolyte contain and neutralize spill. Dispose in accordance with applicable local, state and federal regulations.

---

## 7. Handling and storage

---

Storage:	Store in a cool, dry, and well-ventilated area. Elevated temperature can result in shortened battery life. Storing unpackaged cells together could result in cell shorting and heat build-up.
Mechanical Containment:	Do not obstruct safety release vents on batteries. Encapsulation (potting) of batteries will not allow cell venting and can cause high-pressure rupture.
Handling:	<p>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 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.</p> <p>If soldering or welding to the battery is required, use of tabbed batteries is recommended.</p> <p>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.</p>
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

---

Specific control parameter :

Personal protective equipment

Respiratory protection (Specify Type)	Not necessary under conditions of normal use.
Ventilation:	Not necessary under conditions of normal use.
Protective Gloves:	Not necessary under conditions of normal use.
Eye protection:	Not necessary under conditions of normal use.
Other Protective (Clothing or Equipment):	Not necessary under conditions of normal use.

---

## 9. Physical and chemical properties

---

Appearance	
Physical state:	Solid
Form:	Cylindrical
Color:	Metallic color
Odor:	No odor
PH	N/A
Specific temperatures	N/A
Flash point	N/A
Explosion properties	N/A
Density	N/A
Solubility	Electrolyte is soluble. Remainder of pack is insoluble

---

## 10. Stability and reactivity

---

Stability:	Stable
Conditions to Avoid:	Do not exceed manufacturer's recommendations for charging or use battery for an application for which it was not specifically designed. Do not electrically short
Hazardous Decomposition or By-products:	Will not occur.
Materials to avoid:	Avoid contact with acids and oxidizers.

---

**11. Technological information**

---

Under normal conditions of use, the battery is hermetically sealed. (Note: Nickel, nickel compounds, cobalt, and cobalt compounds are listed as possible carcinogens by IARC or NTP)

---

**12. Ecological information**

---

Ecotoxic effects : N/A  
Further ecological data : N/A

---

**13. Disposal considerations**

---

Li-ion batteries must be handled in accordance with all applicable state and federal laws and regulations.

DO NOT INCINERATE or subject battery cells to temperatures in excess of 212° F. Such treatment can vaporize the liquid electrolyte causing cell rupture. Do not use in combination with fresh and used lithium batteries neither with other type of battery.

---

**14. Transportation information**

---

Sealed Ni-MH batteries are considered to be "Dry Cell" batteries and are unregulated for purposes of Transportation by the US Department Of Transportation (DOT). For air and ground transportation, these batteries are not subject to the dangerous goods regulations as they are compliant with the requirements contained in the following special provisions :

Regulatory Body	Special Provisions
ADR	295-304, 598
IMDG	UN3496
SP	963
UN	UN 3028 Provisions 295-304
US DOT	49 CFR 172.102 Provision 130
IATA	A123
ICAO	UN 3028 Provisions 295-304

---

**15. Regulatory information**

---

Nickel Metal hydride batteries are submitted to the European community directive 91-157/CE for recycling. Substances contained are submitted to the REACH 06-1907/CE regulation

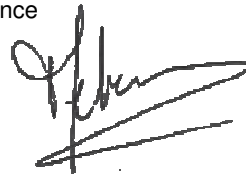
---

**16. Other information**

---

Make people : Professional post : Quality Engineer Name(sign) : Celine METAIS  
Make unit : Name : Quality Dpt Phone : +33 1 60 11 61 59  
Address : 3, rue de Longjumeau, 91300 Massy, France

Date of issue : 2011/01/01



DISCLAIMER : The information and recommendations set forth are made in good faith and believed to be accurate as of the date of preparation. Jade-Technologie makes no warranty, expressed or implied, with respect to this information and disclaims all liabilities from reliance on it.