



## Material Safety Data Sheet

### 1. Product & Company Identification

<b>Product:</b>	1,2 V NiMH rechargeable battery (type baby, C)
<b>Manufacturer:</b>	Conrad Electronic SE
<b>Nominal voltage:</b>	1,2 V
<b>Nominal capacity:</b>	4000 mAh
<b>Address:</b>	Klaus-Conrad-Str. 1, D-92240 Hirschau
<b>Telephone:</b>	+49 (0) 9604 / 40 - 8988
<b>Date of issue:</b>	10.03.2014

### 2. Hazards Identification

Nickel Metal Hydride Batteries are exempted from Dangerous Goods UN-Recommendations on the Transport of Dangerous Goods Model Regulations (ST/SG/AC. 10/1 Rev. 17).

### 3. Hazardous Ingredients

The battery should not be opened or exposed to heat because exposure of the following ingredients contained could be harmful under some circumstances.

Ingredient	Percent	CAS Index No./EC No.	Molecular formula
Nickel Hydroxide	27.2%	12054-48-7	Ni(OH) <sub>2</sub>
Cobalt	3.8%	7440-48-4	Co
Manganese	35.5%	7439-96-5	
Lanthanum		7439-91-0	
Cerium		7440-45-1	
Neodymium		7440-00-8	
Potassium Hydroxide	2.0%	1310-58-3 71769-53-4	KOH
Polypropylene	1.8%	9003-07-0	(PP)
Iron	22.7%	7439-89-6	Fe
Water	6.4%	7732-18-5	H <sub>2</sub> O
Polyamide	0.6%	63428-84-2	(PA66)
Rubber	0.0%	25038-36-2	(EPDM)

Chemical System: Nickel/Metal Hydride

Designated for Recharge: Yes

Note: The above Information is provided for the users information only.



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### 4. Physical Data for Battery

Melting point (°C)	N/A
Boiling point (°C)	N/A
%Volatile by Volume	N/A
Vapor pressure (mmHg)	N/A
Evaporation Rate	N/A
Vapor Density (Air=1)	N/A
Specific Gravity (H <sub>2</sub> O)	N/A
Solubility in water	N/A
Appearance and Odor:	No Odor

### 5. First Aid Measures

The product contains corrosive electrolyte, in case of electrolyte leakage from the battery, action described below are required.

#### Skin Contact

Wash this contacted areas off immediately with plenty of water. If appropriate procedures are not taken, this may cause sores on the skin.

#### Eye contact

Flush the eyes with plenty of clean water without rubbing. Take a medical treatment. If appropriate procedures are not taken, this may cause an eye irritation.

#### Inhalation

Remove to fresh air immediately. Take a medical treatment.

#### Extinguishing method

Since vapor, generated from burning batteries may make eyes, nose and throat irritate, be sure to extinguish the fire on the windward side. Wear the respiratory protection equipment in some cases.

#### Fire extinguishing agent

Dry chemical, alcohol-resistant foam, carbon dioxide and plenty of water are effective.

### 6. Fire and Explosion Hazard Data

Flash Point	N/A
Lower Explosive Limit	N/A
Upper Explosive Limit	N/A

#### Extinguishing Media:

Water, Foam, Dry. Any class of extinguishing medium bay be used on the batteries or their packing material.

#### Special Fire Fighting Procedures:

Exposure to temperatures of above 100°C can cause venting of the liquid electrolyte. Internal shorting could also cause venting of the electrolyte. There is potential for exposure to iron, nickel, cobalt, rare earth metals, manganese and aluminium fumes during fire; use self-contained breathing apparatus.



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### 7. Accidental Release

Steps to be taken in case material is released or spilled:

The preferred response is to leave the area and allow the batteries to cool and the vapours to dissipate. Avoid skin and eye contact or inhalation of vapours. Collect all released materials in a plastic lined metal container and remove spilled liquid with absorbent. Doing this, protect your skin and eyes with gloves and protection glasses.

### 8. Handling and Storage

1. When packing the batteries, to not allow battery terminals to contact each other, or contact with other metals. Be sure to pack batteries by providing in the packing box, or in a separate plastic bag so that the single batteries are not mixed together.
2. Use strong materials for packing boxes so that they will not be damaged by vibration, impact, dropping and stacking during their transportation.
3. Do not let water penetrate into packing boxes during their storage and transportation.
4. The batteries will bestored at room temperature.
5. Do not store the battery in places of high temperature exceeding 35°C or under direct sunlight or in front of a stove. Please also avoid the places of high humidity. Be sure not to expose the battery to condensation, water drop or not to store it under lower temperature than -20°C.
6. Batteries are sure to be packed in such a way to prevent short circuits under conditions normally encountered in transport.
7. Please avoid storing the battery in the place where it is exposed to the electricity, so that no damage will be caused to the protection circuit of the battery pack.

### 9. Exposure Controls/Personal Protection

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.

### 10. Physical and Chemical Properties

The chemicals mentioned in Section 3 are contained in a hermetically sealed can. Under conditions of normal use, the chemicals will not be released.

### 11. Stability and Reactivity

Nickel Metal Hydride Batteries are contained in a stable shell container and are hermetically sealed to avoid any chemical release under conditions of normal use.



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### 12. Health Hazard Data

#### Skin contact

Exposure to the electrolyte contained inside the battery may result in chemical burn. 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.

#### Ingestion

If the battery case is breached in the digestive tract, the electrolyte may cause localized burns.

#### Inhalation

During normal use inhalation is an unlikely route of exposure due to containment of hazardous materials within battery case.

### 13. Reactivity Data

1. The batteries are stable under normal operation condition.
2. Hazardous polymerization will not occur.
3. Hazardous decomposition products: Nickel-dihydroxide, cobalt, metal hydride.
4. Conditions to avoid: heat, open flames, sparks, and moisture.
5. Incompatibilities (materials to avoid): The battery cells are encased in a non-reactive container; if the container is breached, avoid contact of internal battery components with acids, aldehydes, and carbonate compounds.

### 14. Transport Information

Our batteries are considered to be „Dry cell“ batteries and are unregulated for purposes of transportation by the U.S. Department of Transportation (DOT), International Civil Aviation Administration (ICAO), International Air Transport Association (IATA) and International Maritime Dangerous Goods Regulations (IMDG). Shipping these batteries is subject to the only requirements by DOT in Special Provision 130 which states „Batteries, dry, are not subject to the requirement 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)“.

Shipping these batteries is subject to the only requirements by ICAO and IATA is Special Provision A123 which states „An electrical battery or battery powered device having the potential of dangerous evolutions of heat that is not prepared so as to prevent a short-circuit is forbidden from transportation“.

The International Maritime Dangerous Goods Code (IMDG) regulate them for ocean transportation under Special Provision 963 which says „Batteries, dry, containing corrosive electrolyte which will not flow out of 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. As of 1/1/97 IATA requires that batteries being transported by air must be protected from short-circuiting and protected from movement that could lead to short circuiting.

„We hereby certify that the consignment is not classified as dangerous under the current edition of the IATA, Dangerous Goods Regulations A123 under 55th Edition and all applicable carrier and governmental regulations“.



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### 15. Regulatory Information

1. IATA DGR A123-2014 dangerous goods regulations
2. ICAO Technical Instructions for the safe transport of dangerous goods by air
3. An inner packing in such matter as to effectively prevent short circuits and to prevent movements which could lead to short circuits.

### 16. Reference

UN recommendations on the Transport of Dangerous Goods Model Regulations (ST/SG/AC. 10/1 Rev. 17)