

## MATERIAL SAFETY DATA SHEET

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Product name Nickel Metal Hydride Battery

The batteries referenced herein are exempt articles and are not subject to the OSHA Hazard Communication Standard requirement. This safety data sheet is provided as a service to our customers.

### 1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND THE COMPANY / UNDERTAKING

#### Identification of the substance/preparation

**Product name** Nickel Metal Hydride Battery  
**Use of the Substance/Preparation** Battery  
**Company/Undertaking Identification**  
**Supplier** Wentronic GmbH  
Pillmannstr. 12  
38112 Braunschweig

**Emergency telephone number :** +49 531 210 58 0

### 2. COMPOSITION / INFORMATION ON INGREDIENTS

The Nickel Metal Hydride battery is hermetically sealed ; among its components, the following ones could potentially be hazardous upon release.

Product name	Nickel Metal Hydride Battery			
Hazardous components	CAS-No.	EC-No.	Weight %	Classification
Nickel hydroxide	12054-48-7	235-008-5	15-30%	Carcinogenic Category 3 R40 sensitizing R43, Xn R20/22 N R50-53
Metal Hydride Alloy			15-40%	Carcinogenic Category 3 R40 Sensitizing R42/43,
Potassium hydroxide	1310-58-3	215-181-3	3-15%	C R35, Xn R22
Cobalt hydroxide	21041-93-0	244-166-4	2.5-7%	XnR22, sensitizing R42/43

For the full text of the R phrases mentioned in this Section, see Section 15.

### 3. HAZARDS IDENTIFICATION

**Classification** Carcinogenic Category 3 R40, sensitizing R42/43, Xn R20/22, C R35, N R50-53

**Most important hazards** Limited evidence of a carcinogenic effect. Causes severe burns Harmful by inhalation and if swallowed. May cause sensitization by inhalation and skin contact. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Further information** The Nickel Metal Hydride is a sealed battery which is not hazardous when used according to recommendations.  
Under normal conditions of use, the integrity of the battery casing and security vent are maintained, the ingredients are not expected to pose a significant risk to man or the environment.  
On some bad using conditions (high over-charge, inverse charge, external short circuit) and in case of a bad functioning, some electrolyte leakage can occur by the safety vent. In these cases, the risk is the caustic nature of electrolyte (potassium hydroxide).  
The classification above is based on the contents being considered as a preparation in accordance with Directive 1999/45/EC

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**4. FIRST AID MEASURES****General advice**

Show this safety data sheet to the doctor in attendance.

*The information below refers to exposure to the ingredients.*

**Inhalation**

Immediate medical attention is required. Move to fresh air. If symptoms persist, call a physician.

**Skin contact**

Immediate medical attention is required. Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. If skin irritation persists, call a physician.

**Eye contact**

Immediate medical attention is required.

Remove contact lenses. Rinse immediately with plenty of water for at least 15 minutes.

**Ingestion**

Immediate medical attention is required. Gently wipe or rinse the inside of the mouth with water. Give small amounts of water to drink. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Centre immediately.

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**5. FIRE-FIGHTING MEASURES****Suitable extinguishing media**

Dry powder, carbon dioxide (CO<sub>2</sub>), sand.

**Extinguishing media which must not be used for safety reasons**

Water, water spray.

**Specific hazards**

Risk of receptacle bursting.

**Special protective equipment for firefighters**

In the event of fire, wear self contained breathing apparatus. Wear personal protective equipment.

**Hazardous decomposition products**

Nickel and cobalt compounds.

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**6. ACCIDENTAL RELEASE MEASURES**

*The information below refers to exposure to the ingredients.*

**Personal precautions**

Use personal protective equipment.  
Avoid contact with skin and eyes.

**Environmental precautions**

Prevent further leakage or spillage if safe to do so.  
Do not allow material to contaminate ground water system.

**Methods for cleaning up**

Pick up and transfer to properly labelled containers.  
Dispose of in accordance with local regulations.

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**7. HANDLING AND STORAGE****Handling****Technical measures/Precautions**

No special technical protective measures required.

Do not obstruct safety vent by soldering or welding tabs on the positive top.

**Safe handling advice**

Avoid contact with skin and eyes.

Use personal protective equipment.

**Storage****Technical measures/Storage conditions**

Keep in a dry, cool and well-ventilated place, preferably in the temperature range of +5 to +25°C at 65%(+5%) relative humidity.

Keep away from heat and sources of ignition.

Ensure battery terminals are protected during storage.

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**8. EXPOSURE CONTROLS / PERSONAL PROTECTION****Occupational exposure controls****Engineering measures**

Ensure adequate ventilation, especially in confined areas.

**Personal protective equipment**

Not required under normal use.

**The information below refers to exposure to the ingredients.**

**Respiratory protection**

Wear a positive-pressure supplied-air respirator with full facepiece.

**Hand protection**

Neoprene gloves (EN374).

**Eye protection**

Safety glasses with side-shields conforming to EN166.

**Skin and body protection**

Boots, apron, protective suit.

**Hygiene measures**

General industrial hygiene practice.

**Environmental exposure controls**

**The information below refers to exposure to the ingredients**

Prevent product from entering drains.

Do not allow material to contaminate ground water system.

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**9. PHYSICAL AND CHEMICAL PROPERTIES****General Information**

**Form**        battery (sealed unit)            **Colour**    not applicable            **Odour**        odourless

**Important Health Safety and Environmental Information**

not applicable

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**10. STABILITY AND REACTIVITY****Stability**

Stable under normal conditions.

**Hazardous polymerisation**

Hazardous polymerisation does not occur.

**Conditions to avoid**

Keep away from heat and sources of ignition.

**Materials to avoid**

Exposure to moisture.

**Hazardous decomposition products**

Nickel and cobalt compounds.

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**11. TOXICOLOGICAL INFORMATION**

The information below refers to exposure to the ingredients

**Local effects**

Causes severe burns. Risk of serious damage to eyes. Harmful by inhalation and if swallowed.

**Long term toxicity**

No data available. Avoid repeated exposure.

**Specific effects**

May cause sensitization by inhalation and skin contact.

Limited evidence of a carcinogenic effect.

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**12. ECOLOGICAL INFORMATION**

If used as directed, and if the integrity of the battery casing and security vent are maintained, the ingredients are not expected to pose a significant risk to the environment.

**Mobility**

No data available.

**Persistence and degradability**

No data available.

**Ecotoxicity effects**

The information below refers to exposure to the ingredients

Nickel hydroxide: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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**13. DISPOSAL CONSIDERATIONS****Waste from residues / unused products**

Dispose of in accordance with local regulations. It must undergo special treatment, e.g. at suitable disposal site, to comply with local regulations. Should not be released into the environment.

**Contaminated packaging**

Not applicable.

**Further information**

EWC waste disposal No: 200133 - batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these batteries

Never incinerate Ni-MH batteries.

Never dispose Ni-MH batteries as landfill.

Nickel-Metal Hydride batteries - which in some countries may not be subject to collection & recycling and/or disposal requirements - do however contain recyclable materials and Wentronic recommends proper recycling of these batteries whenever possible.

Reference number: RD-DS-N003

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**14. TRANSPORT INFORMATION**

Nickel Metal Hydride batteries (sometimes referred to as "Dry cell" batteries) are not listed as dangerous goods under the IATA Dangerous Goods Regulations, ICAO Technical instructions and the U.S. hazardous materials regulations (49 CFR). These batteries are not subject to the dangerous goods regulations provided they meet the requirements contained in the following Special Provisions. Special Provision A123 in the IATA Dangerous Goods Regulations and ICAO Technical Instructions and Special 130 in 49 CFR 172.102 of the U.S. hazardous materials regulations require these batteries to be packed in such a way to prevent short circuits or generating a dangerous quantity of heat. In addition, the IATA Dangerous Goods Regulations and ICAO Technical Instructions require the words "Not Restricted" and "Special Provision A123" be provided on the air waybill, when an air waybill is issued. By ocean the IMO regulates them under Special Provision 304. These Special Provisions have requirements which are similar to the requirements found in Special Provision 130 of the DOT.

We hereby certify that the consignment is not classified as dangerous goods under the current edition of the IATA Dangerous Goods Regulations. And we also have passed test of item of UN38.3.

This product conforms to the requirements of IEC Publication 60086-2.

The battery models listed have aggregate equivalent NiMH content is not more than 100Wh. And shipment contains no item listed under IATA DGR Special Provision A154 and meets all requirements under UN manual of Tests and Criteria Part III, Subsection 38.3.

No	ITEMS	RESULT	REMARKS
1	Altitude simulation	Pass	Test 1 to 5 must be conducted in sequence on the same cell or battery
2	Thermal test	Pass	
3	Vibration	Pass	
4	Shock	Pass	
5	External Short Circuit	Pass	
6	Impact	Pass	
7	Overcharge	Pass	Only battery do need this test item

The product is not classified as dangerous goods according to the current edition of IATA Dangerous Goods Regulation. And not regulated by IATA DGR. This product fully conforms to IATA shipping PI 965, section II. Do not damage or mishandle this package. If package is damaged, batteries must be quarantined, inspected, and repacked. For emergency information call the number on page 1.

The Li-ion battery according to NEW PACKING INSTRUCTION 965~967 of IATA DGR 53rd Edition for transportation.

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**15. REGULATORY INFORMATION**

**Symbol**                    C – Corrosive  
                                      N – Dangerous for the environment

**Text of R phrases**    **mentioned in Section 2**  
R22 - Harmful if swallowed.  
R20/22 - Harmful by inhalation and if swallowed.  
R35 - Causes severe burns  
R40 - Limited evidence of a carcinogenic effect.  
R42/43 - May cause sensitization by inhalation and skin contact.  
R43 - May cause sensitization by skin contact.  
R50/53 - Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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**16. OTHER INFORMATION**

**S -phrases**            S 1/2 - Keep locked up and out of the reach of children.  
                              S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.  
                              S45 - In case of accident or if you feel unwell, seek medical advice immediately  
                              (show the label where possible).  
                              S60 - This material and its container must be disposed of as hazardous waste.  
                              S61 - Avoid release to the environment. Refer to special instructions/safety data sheets.

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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