

	Material - Safety - Data Sheet (MSDS) for Ansmann NiMH Batteries single cells and multi-cell battery packs	No.11 1/6
Date of issue: 2012 - 01 - 30 Revision no: 17 Revision date: 2026 - 03 - 31 Editor: Ansmann AG	The information contained within is provided as a service to our customers and for their information only. The information and recommendations set forth herein are made in good faith and are believed to be accurate at the date of preparation. ANSMANN AG makes no warranty expressed or implied.	
1. Product and Supplier Identification		
Product name: Type: Models / types: Electrochemical system:	Ansmann NiMH Battery Sealed rechargeable nickel-metal-hydride battery Prismatic and round cells Nickel hydroxide (positive electrode) Metal hydroxide (negative electrode) Potassium hydroxide (electrolyte)	
Supplier: Germany Address: Phone / Fax: Home / email:	ANSMANN AG Industriestraße 10; 97959 Assamstadt; Germany + 49 (0) 6294 42040 / + 49 (0) 6294 420444 ansmann.de / info@ansmann.de	
Subsidiaries:		
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EMERGENCY CONTACT:	For chemical emergency only (spill, leak, fire, exposure or accident) call phone no.: +49 6294 4204 0	
Legal remark (EU) These batteries are no "substances" or "mixtures" according to Regulation (EC) No 1907/2006 EC. Instead they have to be regarded as "articles", no substances are intended to be released during handling. Therefore there is no obligation to supply a safety data sheet according to Regulation (EC) No 1907/2006, Article 31. The headings used in this safety data sheet are in line with Annex II of Regulation (EC) No 1907/2006 as amended by Regulation (EU) 2020/878		
2. Hazards Identification		
The rechargeable NiMH batteries described in this Product Safety Data Sheet are sealed units which are not hazardous when used according to the recommendations of the manufacturer and as long as their integrity is maintained. Do not short circuit, puncture, incinerate, crush, force discharge or expose to temperatures above the declared operating temperature range of the product. Risk of fire or explosion. Under normal conditions of use, the active materials and liquid electrolyte contained in the cells and batteries are not exposed to the outside, provided the battery integrity is maintained and seals remain intact. Risk of exposure only in case of abuse (mechanical, thermal, electrical) which leads to the opening of the valves and/or the rupture of the battery container. Electrolyte leakage or battery vent/explosion/fire may follow, depending upon the circumstances.		



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3. Composition and Informations on Ingredients

Each cell consists of a hermetically sealed metallic container containing a number of chemicals and materials of construction of which the following could potentially be hazardous upon release.

Ingredient	Content	CAS No.	Hazard Categories	Hazard Statements
Metal Hydride Alloy	15 - 40%		Flam. Sol. 1, Pyr. Sol. 1, Resp. Sens. 1 Skin Sens. 1, Carc. 2, STOT RE 1, Aquatic Chronic 3	H228, H250, H334, H317, H351 H372, H412
Nickel Hydroxide Ni(OH)_2	20 - 50%	12054-48-7	Acute Tox. 4, Skin Irrit. 2, Skin Sens. 1 Resp. Sens. 1, Muta. 2, STOT RE 1, Aquatic Acute 1, Aquatic Chronic 1, Carc. 1A, Repr. 1B	H302, H315, H317, H332, H334, H341, H272, H400, H410, H350i, H360D
Cobalt (Co) and compounds	1 - 5%	7440-48-4	Acute Tox. 4, Skin Sens. 1, Aquatic Acute 1, Aquatic Chronic 1	H302, H317, H400 H410
Potassium Hydroxide (KOH)	5 - 20%	1310-58-3	Acute Tox. 4, Skin Corr. 1A	H302, H314
Sodium Hydroxide (NaOH)	0 - 10%	1310-73-2	Acute Tox. 4, Skin Corr. 1A	H302, H314
Stainless Steel (Fe) Nickel plated	10 - 40%	7439-89-6 7440-02-0		
Lithium Hydroxide (LiOH)	0 - 0.5%	1310-65-2	Acute Tox. 3, Skin Corr. 1A	H301, H314
Plastics	2 - 5%			
Lead (Pb)	< 0.004%	7439-92-1		
Mercury (Hg)	< 0.0001%	7439-97-6		
Cadmium (Cd)	< 0.001%	7440-43-9		

For full text of hazard statements see section 16

4. First Aid Measures

In case of accumulator breakage or burst, please evacuate employees from the contaminated area and ensure maximal ventilation in order to break-up corrosive gas, smoke and unpleasant odours.

If it occurs, by accident, following measures must be taken:

Inhalation: Provide fresh air. In severe cases obtain medical attention.

Skin Contact: Wash off skin thoroughly with water. Remove contaminated clothing and wash before re-use. In severe cases obtain medical attention.

Eye Contact: Irrigate thoroughly with water for at least 15 minutes. Lifting upper and lower lids, until no evidence of the chemical remains. Obtain medical attention.

Ingestion: Wash out mouth thoroughly with water. Do not induce vomiting or give food or drink. Seek medical attention immediately.

Further treatment: All cases of eye contamination, persistent skin irritation and casualties who have swallowed this substance or been affected by breathing its vapours should be seen by a doctor.



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5. Fire Fighting Measures

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

In case of fire where nickel metal hydride batteries are present, apply a smothering agent such as METL-X, sand, dry ground dolomite, CO₂ or soda ash, or flood the area with water. A smothering agent will extinguish burning nickel metal hydride batteries. Water may not extinguish burning batteries but will cool the adjacent batteries and control the spread of fire. Burning batteries will not burn themselves out. Virtually all fires involving nickel metal hydride batteries can be controlled with water. When water is used, however, hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended.

Do not let used extinguishing media penetrate into surface water or ground water. If necessary, thicken water or foam with suitable solids. Dispose of properly.

Fire fighters should wear self-contained breathing apparatus. Burning nickel metal hydride batteries can produce toxic fumes including oxides of nickel, cobalt, aluminum, lanthanum, cerium and neodymium

6. Accidental Release Measures

Remove personnel from area until fumes dissipate. Do not breathe vapours or touch liquid with bare hands. Provide sufficient room ventilation if required.

If the skin has come into contact with the electrolyte, it should be washed thoroughly with water.

Use neoprene or natural rubber gloves and protective glasses, if handling an open or leaking battery.

Battery materials should be collected in a leak-proof container and disposed of as Special Waste in accordance with local regulations.

7. Precautions for safe Handling and Use

Storage: Store in a cool (preferable below 25°C), well ventilated area, away from moisture, sources of heat, and open flames.
Elevated temperatures can result in shortened battery life. Temperatures above 70°C may result in battery leakage and rupture.
Keep adequate clearance between walls and batteries.
Since short circuit can cause burn, leakage and rupture hazard, keep batteries in original packaging until use and do not jumble them.

Handling: Do not crush, pierce, short (+) and (-) battery terminals with conductive (i.e. metal) goods, which would end up into excessive heating.
Do not directly heat or solder. Do not throw into fire.
Do not mix batteries of different types and brands. Do not mix new and used batteries. Keep batteries in non conductive (i.e. plastic) trays.
Do not disassemble, mutilate or mechanically abuse cells and batteries.
In order to prevent seal or safety vent damage, never solder the batteries directly at the battery terminals.

Charging: This battery is made to be charged many times. Use only specified charger.
Follow manufacturer data in respect of charge current and charge time.
Note correct polarity. Improper charging can cause heat damage or even high pressure rupture.

Disposal: Dispose in accordance with all applicable federal, state and local regulations.

8. Special Protection Information

Ventilation Requirements: Not necessary under normal conditions. Room ventilation may be required in areas where there are open or leaking batteries.

Respiratory Protection:  Not necessary under normal conditions. Avoid exposure to electrolyte fumes from open or leaking battery. In all fire situations use self-contained breathing apparatus

Eye Protection:  Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.

Hand Protection:  Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery



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9. Physical and Chemical Properties

Note: The following points are not applicable unless in case of leaking or damaged batteries with exposed internal components.

Appearance:	Nickel plated steel cylindrical cell, eventually sleeved.
Odour:	Odourless (unless in case of damaged product with leaking electrolyte)
Flashpoint:	Not applicable
Flammability:	Not applicable
Relative density:	> 2 g/cm ³
Specific energy:	30...90Wh/kg
Temperature range:	Usage recommended between -40°C and +70°C.

10. Stability and Reactivity

Product is stable under conditions described in Section 7.

Conditions to avoid: Heat above 70° or incinerate. Deform. Mutilate. Crush. Pierce. Disassemble. Short circuit. Expose over a long period to humid conditions.

Materials to avoid: Strong mineral acids, alkali solutions, strong oxidising materials and conductive materials.

Hazardous decomposition products: Electrolyte solution is corrosive to all human tissues and will react violently with many organic chemicals. Electrolyte solution reacts with zinc, aluminum, tin and other materials releasing flammable hydrogen gas.

11. Toxicological Information

Nickel metal hydride batteries are not hazardous waste. Under normal conditions of use, Ni-MH batteries are non-toxic.

In case of can opening or destruction, the following substances can be released:

Substances			Hazards		
Name	N° EC N° CAS N° EINECS	Symbol	Effects	Dust exposure limits	Carcinogenicity mutagenicity protoxicity
Nickel	028-002-00-7 7440-02-0 231-111-4	Ni	Xn	Nocif	R 40-43 R 17
Nickel-Hydroxyde	028-008-x* 12054-48-7 235-008-5	Ni(OH) ₂	LD50/oral/rat: 1600mg/kg	VME: 1000µg/m ³ VLE: /	Occupational
Cobalt-Hydroxyde	- 21041-93-0 244-166-4	Co(OH) ₂	LD50/oral/rat: 795mg/kg	VME: 100µg/m ³ VLE: /	/
Alkaline-Hydroxydes	019-002-00-8 1310-58-3	KOH NaOH LiOH	LD50/oral/rat: 365mg/kg	KOH VME: 2mg/m ³ NaOH VME: 2mg/m ³ LiOH VME: 25µg/m ³	/

12. Ecological Information

Ansmann rechargeable nickel metal hydride button cells do not contain heavy metals as defined by the EU Battery Regulation (2023/1542) Article 6; they comply with the chemical composition requirements of this Regulation. Mercury has not been "intentionally introduced (as distinguished from mercury that may be incidentally present in other materials)" in the sense of the U.S.A. "Mercury-Containing and Rechargeable Battery Management Act" (May 13 1996).

The Regulation on Mercury Content Limitation for Batteries promulgated on 1997-12-31 by the China authorities including the State Administration of Light Industry and the State Environmental Protection Administration defines "low mercury" as "mercury content by weight in battery as less than 0.025 %", and "mercury free" as "mercury content by weight in battery as less than 0.0001 %". And therefore: VARTA rechargeable nickel metal hydride button cells belong to the category of mercury-free battery (mercury content lower than 0.0001 %)



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13. Disposal Considerations

USA: NiMH batteries are classified by the federal government as non-hazardous waste and are safe for disposal in the normal municipal waste stream. These batteries, however, do contain recyclable materials and are accepted for recycling by the Rechargeable Battery Recycling Corporation's (RPBC) Battery Recycling Program. Please go to the RPBC website at www.rbrcc.org (www.call2recycle.org) for additional information.

In the European Union, manufacturing, handling and disposal of batteries is regulated on the basis of the Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 on batteries and accumulators and waste batteries and accumulators. Customers find detailed information on disposal in their specific countries using the web site of the European Portable Batteries Association (www.epbaeurope.net).

Importers and users outside EU should consider the local laws and rules.

In order to avoid short circuit and heating, used nickel metal hydride cylindrical cells and batteries should never be stored or transported in bulk. Proper measures against short circuit are:

- Storage of batteries in their original packaging
- Coverage of the terminals

14. Transport Information

General considerations

Ansmann rechargeable nickel metal hydride batteries are considered to be "dry cell" batteries, hazard class 9 (UN3496), 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), the International Maritime Organization (IMO), the Accord Européen Relatif au Transport International des Marchandises Dangereuses par Route (ADR) and the Règlement concernant le transport international ferroviaire de marchandises Dangereuses (RID).³

Code of practice for packaging and shipment of secondary batteries given in IEC 62133-1:2017: "The goal of packaging of secondary cells and batteries for transport is to prevent opportunities for short circuit, mechanical damage and possible ingress of moisture. The materials and packaging design should be chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of environmental contaminants."

IATA DGR

Special Provision A199 is a new special provision assigned against the entry for Batteries, nickel-metal hydride. The special provision identifies that UN 3496 only applies in sea transport and that - provided that nickel-metal hydride batteries are prepared in accordance with the special provision - they are "not restricted" in air transport.

Nickel-metal hydride batteries or nickel-metal hydride battery powered electronic devices or equipment, having the potential of a dangerous evolution of heat, must be prepared for transport as to prevent:

- (a) a short-circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals; or, in the case of equipment, by disconnection of the battery and protection of exposed terminals); and
- (b) accidental activation.

The words "Not restricted" and the Special Provision number must be included in the description of the substance on the Air Waybill as required by 8.2.6, when an Air Waybill is issued.

EU (ADR/RID): Chapter 3.2 Table A: "Batteries, nickel-metal hydride, UN3496, not subject to ADR"

USA: 49 CFR § 172.102 Special Provision 130: Nickel-metal hydride cylindrical cells/batteries are not subject to requirements of this subchapter except for the following.... "Batteries and battery-powered devices containing batteries must be prepared and packaged for transport in a manner to prevent: (1) A dangerous evolution of heat; (2) Short circuits, including but not limited to the following methods:

- a) Packaging each battery or each battery-powered device when practicable, in fully enclosed inner packaging made of non-conductive material
- b) Separating or packaging batteries in a manner to prevent contact with other batteries, devices or conductive materials (e.g. metal) in the packaging..."

Special Provision 340: This entry applies only to the vessel transportation of nickel-metal hydride batteries as cargo. (Regulated as "Batteries, nickel-metal-hydride, UN3496") [...] Nickel-metal hydride batteries subject to this special provision are subject only to the following requirements: (1) The batteries must be prepared and packaged for transport in a manner to prevent a dangerous evolution of heat, short circuits, and damage to terminals; and are subject to the incident reporting in accordance with §171.16 of this subchapter if a fire, violent rupture, explosion or dangerous evolution of heat (i.e., an amount of heat sufficient to be dangerous to packing or personal safety to include charring of packaging, melting of packaging, scorching of packaging, or other evidence) occurs as a direct result of a NiMH battery; and (2) when loaded in a cargo transport unit in a total quantity of 100kg gross mass or more, the shipping paper requirements of subpart C of this part, the manifest requirements of §176.30 of this subchapter, and the vessel stowage requirements assigned to this entry in Column (10) of the §172.101 Hazardous Materials Table.



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International Maritime Organization (IMO), IMDG Code: Regulated as "Batteries, nickel-metal hydride, **UN 3496**", Special Provision 963: "...nickel-metal hydride cells or batteries shall be securely packed and protected from short-circuit. They are not subject to other provisions of this Code provided that they are loaded in a cargo transport unit in a total quantity of less than 100kg gross mass. When loaded in a cargo transport unit in a total quantity of 100kg gross mass or more, they are not subject to other provisions of this Code except those of 5.4.1, 5.4.3 and column (16) of the dangerous goods list in Chapter 3.2."

15. Regulatory Information

Marking considerations (EU)

Ansmann rechargeable nickel metal hydride cells conform to the requirements of the EU Battery Regulation (EU) 2023/1542 and are thus marked with the CE symbol.

According to the EU Battery Regulation, batteries have to be marked with the crossed bin.

International safety standards

For UL recognition of the basis cells according to UL 2054 see: BBET2.MH13654

Survey of Standards:

Regulatory Body

Special Provisions

ADR (2025)

295 - 304, 598

IMDG Code 2025 / 42-24

UN 3496 - Special Provision SP 963

U.S. DOT

49 CFR 172.102 Provision 130, 340

IATA (67th edition, effective 1st January 2026)

A199

Latest covered modification of the European Battery Regulation (2023/1542)

Ni-MH 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

Full text of Hazard Statements referred to under section 3

Code	Phrase
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H228	Flammable solid
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H250	Catches fire spontaneously if exposed to air.
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H272	May intensify fire; oxidiser.
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H301	Toxic if swallowed.
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H302	Harmful if swallowed.
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H314	Causes severe skin burns and eye damage.
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H315	Causes skin irritation.
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H317	May cause an allergic skin reaction.
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H332	Harmful if inhaled.
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H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
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H341	Suspected of causing genetic defects.
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H350i	May cause cancer by inhalation.
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H351	Suspected of causing cancer.
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H360D	May damage the unborn child.
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H372	Causes damage to organs through prolonged or repeated exposure
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H400	Very toxic to aquatic life
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H410	Very toxic to aquatic life with long lasting effects
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H412	Harmful to aquatic life with long lasting effects.
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