

TOPA BATTERY MATERIAL SAFETY DATA SHEET

PRODUCT NAME: Nickel-Metal Hydride battery SEALED CELL BATTERY (Ni-MH Series)

Safety Data Sheet

1907/2006/EC, 1272/2008/EC

1 Identification of the substance/mixture and of the company/undertaking

- Product identifier
- Trade name: Ni-MH BATTERY
- Article number: Not available
- Registration number: Not available
- Relevant identified uses of the substance or mixture and uses advised against
- Sector of Use: Consumer electronics and remote control toys product
- Application of the substance / the preparation:
- Details of the supplier of the safety data sheet
- Manufacturer/Supplier: TOPA TECHNOLOGY LIMITED
- Full address: No.86,Puxia Road,Henggang,Longgang,Shenzhen,China
- Phone number: +86-755-28319595
- FAX: +86-755-28319696
- Further information obtainable from: TOPA TECHNOLOGY LIMITED
- Emergency telephone number: +86-755-28319595

2 Hazards identification

- Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008
The product is not classified according to the CLP regulation.
- Classification according to Directive 67/548/EEC or Directive 1999/45/EC Not Applicable
- Information concerning particular hazards for human and environment:
The product is not classified as dangerous according to Directive 67/548/EEC, 1999/45/EC and Regulation (EC) No. 1272/2008.
- Classification system:
The classification is according to the latest edition of the Directive 67/548/EEC, 1999/45/EC and Regulation (EC) No. 1272/2008, and extended by company and literature data.
- Additional information:
A sealed Ni-MH battery is not hazardous in normal use on pinciple.
The product has not to be labelled due to the calculation procedure of international guideline.
The materials contained in this product may only represent below hazard if the integrity of the battery is compromised, physically or electrically abused:

R48/23: Toxic: danger of serious damage to health by prolonged exposure through inhalation.
 R35: Causes severe burns.
 R40: Limited evidence of a carcinogenic effect.
 R42/43: May cause sensitisation by inhalation and skin contact.
 R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

H301 Toxic if swallowed.
 H314 Causes severe skin burns and eye damage.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H317 May cause an allergic skin reaction.
 H351 Suspected of causing cancer.
 H411 Toxic to aquatic life with long lasting effects.

- Label elements
- Labelling according to Regulation (EC) No 1272/2008 Void
- Hazard pictograms Void
- Signal word Void
- Hazard statements Void

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- Additional information:
Important! This product contains substances that are of restricted use under Annex XVII of Regulation (EC) No.1907/2006. For details, please refer to Section 15 and 16 of this Safety Data Sheet.
- Other hazards
- Results of PBT and vPvB assessment
- PBT: Not applicable.
- vPvB: Not applicable.

3 Composition/information on ingredients

- Chemical characterization: Mixtures
- Description:
Mixture of the substances listed below with nonhazardous additions.
For the wording of listed risk phrases refer to section 16.

Dangerous components:

CAS: 7440-02-0 EINECS: 231-111-4 EU number: 028-002-00-7 R52/53	nickel T R48/23; Xn R40; Xi R43 Carc. Cat. 3 Carc. 2, H351; STOT RE 1, H372; Skin Sens. 1, H317	40,0%
CAS: 7440-66-6 EINECS: 231-175-3 EU number: 030-001-01-9	zinc N R50/53 Aquatic Acute 1, H400; Aquatic Chronic 1, H410	19,0%
CAS: 1310-58-3 EINECS: 215-181-3 EU number: 019-002-00-8	potassium hydroxide C R35; Xn R22 Skin Corr. 1A, H314; Acute Tox. 4, H302	15,8%
CAS: 7440-48-4 EINECS: 231-158-0 EU number: 027-001-00-9 R53	cobalt Xn R42/43 Resp. Sens. 1, H334; Skin Sens. 1, H317; Aquatic Chronic 4, H413	8,8%
CAS: 7439-96-5 EINECS: 231-105-1	manganese F R11-15 Flam. Sol. 1, H228; Water-react. 1, H260	2,0%
CAS: 7429-90-5 EINECS: 231-072-3 EU number: 013-002-00-1	aluminium powder (stabilised) F R11-15 Flam. Sol. 1, H228; Water-react. 2, H261	1,0%

Non-dangerous components:

CAS: 7439-89-6 EINECS: 231-096-4	iron	15,0%
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4 First aid measures

- Description of first aid measures
If exposure to internal materials within battery due to damaged outer casing, the following actions are recommended.
- General information:
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- After inhalation:
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
- After skin contact: Immediately wash with water and soap and rinse thoroughly.

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- After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing: Drink plenty of water and provide fresh air. Call for a doctor immediately.
- Information for doctor
- Most important symptoms and effects, both acute and delayed: No further relevant information available.
- Indication of any immediate medical attention and special treatment needed:
No further relevant information available.

5 Firefighting measures

- Extinguishing media
- Suitable extinguishing agents:
CO₂, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- Special hazards arising from the substance or mixture:
Battery may burst and release hazardous decomposition products when exposed to a fire situation.
- Advice for firefighters: Cool fire exposed batteries to prevent rupture.
- Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures:
Wear protective equipment. Keep unprotected persons away.
- Environmental precautions:
Do not allow product to reach sewage system or any water source.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up:
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- Reference to other sections:
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- Handling
- Precautions for safe handling:
Thorough dedusting.
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of dust.
- Information about fire - and explosion protection:
Prevent impact and friction.
Protect against electrostatic charges.
Protect from heat.
- Conditions for safe storage, including any incompatibilities
- Requirements to be met by storerooms and receptacles: Store in a cool location.
- Information about storage in one common storage facility: Store away from flammable substances.
- Further information about storage conditions: Keep container tightly sealed.
- Specific end use(s): No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical facilities: No further data; see item 7.

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· Control parameters

· Ingredients with limit values that require monitoring at the workplace:

7440-02-0 nickel	
PEL (USA)	1 mg/m ³
REL (USA)	0,015 mg/m ³ as Ni; See Pocket Guide App. A
TLV (USA)	1,5* 0,2** 0,1*** mg/m ³ inhal.fraction;* elemental;** insol., *** sol.compds.
MAK (Germany)	einatembare Fraktion; vgl.Abschn.XIII
7440-66-6 zinc	
MAK (Germany)	0,1 A* 2 E** mg/m ³ *alveolengängig; ** einatembare
1310-58-3 potassium hydroxide	
REL (USA)	0,2 mg/m ³
TLV (USA)	Short-term value: 0,2 mg/m ³
7440-48-4 cobalt	
PEL (USA)	0,1* mg/m ³ as Co; *for metal dust & fume, as Co
REL (USA)	0,05* mg/m ³ inorg. compds.: *metal dust & fume, as Co
TLV (USA)	0,02 mg/m ³ as Co; BEI
MAK (Germany)	einatembare Fraktion; vgl.Abschn.XIII
7439-96-5 manganese	
PEL (USA)	Short-term value: 0,5* ** mg/m ³ as Mn *and inorganic compounds **fume
REL (USA)	Short-term value: 3* ** mg/m ³ Long-term value: 1* ** mg/m ³ as Mn *and inorganic compounds **fume
TLV (USA)	(0,2) NIC-0,02* NIC-0,2* mg/m ³ as Mn;+ inorg. comp.;* resp., ** inh. fraction:NIC-A4
AGW (Germany)	0,5E mg/m ³ DFG, Y, IO
7429-90-5 aluminium	
PEL (USA)	15* 5** mg/m ³ *total dust **respirable fraction
REL (USA)	10* 5** mg/m ³ Metal *total dust **respirable fraction
TLV (USA)	1* mg/m ³ *as respirable fraction
AGW (Germany)	3* 10** mg/m ³ 2(II); *alveolengängig **einatembare Fraktion; AGS

· DNELs: Not available

· PNECs: Not available

· Additional information: The lists valid during the making were used as basis.

· Exposure controls

· Based on the composition shown in Section 3, the following measures are suggested for occupational safety measure

· Personal protective equipment

· General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

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- Respiratory protection:
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
- Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- Material of gloves:
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
- Penetration time of glove material:
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- Eye protection:



Tightly sealed goggles

9 Physical and chemical properties

- Information on basic physical and chemical properties

- General information

- Appearance

Form:	Cylinder
Colour:	Silvery white
· Odour:	Odourless
· Odour threshold:	Not available

- pH-value: 6~8

- Change in condition

Melting point/Melting range:	Not available
Boiling point/Boiling range:	Not available
· Freezing point:	Not available

- Flash point: Not available

- Flammability (solid, gaseous): Not available

- Ignition temperature: Not available

- Decomposition temperature: Not available

- Self-igniting: Product is not selfigniting.

- Danger of explosion: Risk of explosion by shock, friction, fire or other sources of ignition.

- Explosion limits

Lower:	Not available
Upper:	Not available

- Oxidizing properties: The substance does not belong to oxidizing substance.

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· Vapour pressure:	Not available
· Density:	2,5~4,5 g/cm ³
· Relative density:	Not available
· Vapour density:	Not available
· Evaporation rate:	Not available
· Solubility in / Miscibility with water:	Not available
· Partition coefficient (n-octanol/water):	Not available.
· Viscosity	
Dynamic:	Not available.
Kinematic:	Not available
· Other information:	No further relevant information available.

10 Stability and reactivity

- Reactivity: Data not available
- Chemical stability: Stable
- Possibility of hazardous reactions:
 - Danger of explosion.
 - Danger of causing burns.
- Conditions to avoid: No further relevant information available.
- Incompatible materials: No further relevant information available.
- Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- Information on toxicological effects
- Acute toxicity

- LD/LC50 values relevant for classification:

1310-58-3 potassium hydroxide

Oral LD50 273 mg/kg (rat)

7440-48-4 cobalt

Oral LD50 6170 mg/kg (rat)

7439-89-6 iron

Oral LD50 30 mg/kg (rat)

7439-96-5 manganese

Oral LD50 9000 mg/kg (rat)

- Primary irritant effect
 - on the skin: Contact with battery contents may cause severe irritation and burns.
 - on the eye: Contact with battery contents may cause severe irritation and burns.
- ingestion:
 - Ingestion of battery contents (from a leaking battery) may cause mouth, throat and intestinal burns and damage.
- Sensitization:
 - Sensitization possible through inhalation.
 - Sensitization possible through skin contact.
- Additional toxicological information:
 - The product shows the following dangers if leakage occurs according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:
 - Harmful
 - Corrosive
 - Irritant

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Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- Toxicokinetics, metabolism and distribution: No further relevant information available
- Acute effects (acute toxicity, irritation and corrosivity): No further relevant information available
- CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction): Not available

12 Ecological information

- Toxicity
- Aquatic toxicity: No further relevant information available.
- Persistence and degradability: No further relevant information available.
- Bioaccumulative potential: No further relevant information available
- Behaviour in environmental systems: No further relevant information available
- Bioaccumulative potential: No further relevant information available.
- Mobility in soil: No further relevant information available.
- Ecotoxicological effects
- Remark: Toxic for fish
- Additional ecological information
- General notes:
 - Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
 - Do not allow product to reach ground water, water course or sewage system.
 - Must not reach sewage water or drainage ditch undiluted or unneutralized.
 - Danger to drinking water if even small quantities leak into the ground.
 - Also poisonous for fish and plankton in water bodies.
 - Toxic for aquatic organisms
- Results of PBT and vPvB assessment
- PBT: Not applicable.
- vPvB: Not applicable.
- Other adverse effects: No further relevant information available.

13 Disposal considerations

- Waste treatment methods
- Recommendation:
 - Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- Uncleaned packaging
- Recommendation: Disposal must be made according to official regulations.

14 Transport information

· UN-Number · ADR, IMDG, IATA	Not applicable
· UN proper shipping name · ADR, IMDG, IATA	Not applicable
· Transport hazard class(es) · ADR, IMDG, IATA · Class · Label	Not applicable -
· Packing group · ADR, IMDG, IATA	Not applicable
· Environmental hazards	Product contains environmentally hazardous substances: zinc

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· Marine pollutant:	Yes
· Special precautions for user:	Not applicable.
· Danger code (Kemler):	-
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:	Not applicable.
· UN "Model Regulation":	Batteries may explode or leak if inserted improperly, recharged or disposed of in fire. Do not mix with non-alkaline or used batteries.

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- National regulations
- Other regulations, limitations and prohibitive regulations
- SVHC Candidate List of REACH Regulation Annex XIV Authorisation (19/12/2011)
None of the ingredients is listed
- REACH Regulation Annex XVII Restriction (9/2/2012) 7440-02-0 Nickel
- REACH Regulation Annex XIV Authorisation List (15/2/2012) None of the ingredients is listed
- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

The contents and format of this MSDS/SDS are in accordance with REGULATION (EC) No. 1272/2008, (EC) No. 1907/2006, REGULATION (EU) No. 453/2010 and EU Commission Directive 1999/45/EC, 67/548/EEC.

DISCLAIMER OF LIABILITY

The information in this MSDS/SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in anyway connected with the handling, storage, use or disposal of the product. This MSDS/SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this MSDS/SDS information may not be applicable.

· Relevant phrases

- H228 Flammable solid.
- H260 In contact with water releases flammable gases which may ignite spontaneously.
- H261 In contact with water releases flammable gases.
- H302 Harmful if swallowed.
- H314 Causes severe skin burns and eye damage.
- H317 May cause an allergic skin reaction.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H351 Suspected of causing cancer.
- H372 Causes damage to organs through prolonged or repeated exposure.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.
- H413 May cause long lasting harmful effects to aquatic life.

- R11 Highly flammable.
- R15 Contact with water liberates extremely flammable gases.
- R22 Harmful if swallowed.
- R35 Causes severe burns.
- R40 Limited evidence of a carcinogenic effect.
- R42/43 May cause sensitisation by inhalation and skin contact.
- R43 May cause sensitization by skin contact.

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R48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.
 R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
 R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
 R53 May cause long-term adverse effects in the aquatic environment.

· Recommended restriction of use
 REACH ANNEX XVII Restricted 27
 7440-02-0 Nickel

1. Shall not be used:

(a) in any post assemblies which are inserted into pierced ears and other pierced parts of the human body unless the rate of nickel release from such post assemblies is less than 0,2 µg/cm² /week (migration limit);

(b) in articles intended to come into direct and prolonged contact with the skin such as:

- earrings,
 - necklaces, bracelets and chains, anklets, finger rings,
 - wrist-watch cases, watch straps and tighteners,
 - rivet buttons, tighteners, rivets, zippers and metal marks, when these are used in garments,
- if the rate of nickel release from the parts of these articles coming into direct and prolonged contact with the skin is greater than 0,5 µg/cm² / week.
- (c) in articles referred to in point (b) where these have a non-nickel coating unless such coating is sufficient to ensure that the rate of nickel release from those parts of such articles coming into direct and prolonged contact with the skin will not exceed 0,5 µg/cm² / week for a period of at least two years of normal use of the article.

2. Articles which are the subject of paragraph 1 shall not be placed on the market unless they conform to the requirements set out in that paragraph.

3. The standards adopted by the European Committee for Standardisation (CEN) shall be used as the test methods for demonstrating the conformity of articles to paragraphs 1 and 2.

· Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organization

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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