

BATTERY INFORMATION SHEET for Tridonic NiMH Batteries

1. Identification

1.1 Product identifier

Product name: NiMH rechargeable battery

1.2 Other means of identification

Product model: H-AAA, H-AA, H-A, H-SC, H-7/5SC, H-C, H-18700, H-18900

Nominal voltage: 1.2 V / cell

Discharge cut-off voltage: 1.0 V / cell

1.3 Emergency contact

In case of emergency please contact a Tridonic sales office in your region:

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2. Hazard identification

2.1 Classification

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). This product is an article which is a sealed battery and as such does not require an MSDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (repeated exposure)	Category 1

2.2 GHS Label elements, including precautionary statements

Emergency Overview:

Signal word Danger

Hazard Statements

Causes skin irritation

Causes serious eye damage

May cause an allergic skin reaction

Suspected of causing cancer



This product is an article which contains a chemical substance. Safety information is given for exposure to the article as sold. Intended use of the product should not result in exposure to the chemical substance. This is a battery. In case of rupture: the above hazards exist.

Appearance White Physical State Solid Odor Odorless

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
Do not breathe dust/fume/gas/mist/vapors/spray.
Do not eat, drink or smoke when using this product.

Precautionary Statements - Response

Specific treatment (see supplemental first aid instructions on this label).
Get medical advice/attention if you feel unwell.

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing. Immediately call a POISON CENTER or doctor/physician.

Skin

IF ON SKIN: Wash with plenty of soap and water.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash before reuse.

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Immediately call a POISON CENTER or doctor/physician.

Ingestion

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting.

Precautionary Statements - Storage

No information available.

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC)

No information available.

2.4 Unknown Toxicity

10% of the mixture consists of ingredient(s) of unknown toxicity.

2.5 Other information

No information available.

2.6 Interactions with Other Chemicals

No information available.

3. Composition / information on ingredients

3.1 Mixtures information

Chemical name	Concentration	Cas No.
Nickel hydroxide	36.50 %	12054-48-7
Cobalt oxide	8.3 %	11104-61-3
Hydrogen storage alloy	24.2 %	
PA66	0.80 %	1306-19-0
The diaphragm	3.20 %	31175-20-9
Ploy(tetrafluoroethylene)	0.50 %	9002-84-0
Ploy(vinyl alcohol)	0.20 %	9002-89-5
Styrene 1,3-butadiene polymer	0.20 %	9003-55-8
Nickel	11.10 %	7440-02-0
Sodium hydroxide	1.40 %	215-185-5
Potassium hydroxide	2.80 %	1310-58-3
Water	9.40 %	7732-18-5
Cobalt	0.60 %	7440-48-4
Zinc	0.80 %	7740-66-6

4. First-Aid measures

4.1 Description of first aid measures

General Advice: First aid is upon rupture of sealed battery.

Eye contact: Show this safety data sheet to the doctor in attendance. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists. Do not rub affected area.

Skin contact: Remove contaminated clothes and rinse the skin with plenty of water. Get medical advice / attention if you feel unwell.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, (trained personnel should) give oxygen. Get medical advice / attention if you feel unwell.

Ingestion: Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get medical aid.

Self-protection of the first aider: Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

4.2 Most important symptoms/effects, acute and delayed

Contact with internal components may cause allergic skin sensitization (rash) and irritate eyes, skin, nose, throat, respiratory system. Cobalt and Cobalt compounds are considered to be possible human carcinogen(s).

4.3 Immediate medical attention and special treatment

No information available.

5. Fire-Fighting measures

5.1 Extinguishing media

Suitable extinguishing media: Use foam, dry powder or dry sand, CO₂ as appropriate.

Unsuitable extinguishing media: No information available.

5.2 Special hazards arising from the chemical

Under fire conditions, batteries may burst and release hazardous decomposition products when exposed to a fire situation. This could result in the release of flammable or corrosive materials.

Hazardous combustion products: CO, CO₂, Metal oxides, Irritating fumes.

5.3 Hazardous Combustion Products

Carbon oxides.

5.4 Explosion Data

Sensitivity to Mechanical Impact: No.

Sensitivity to Static Discharge: No.

5.5 Special protective equipment and precautions for fire-fighters

Firefighters must wear fire resistant protective equipment and appropriate breathing apparatus. The staff must equip with filtermask (full mask) or isolated breathing apparatus. The staff must wear the clothes which can defense the fire and the toxic gas. Put out the fire in the upwind direction. Remove the container to the open space as soon as possible. Spray water on the containers in the fireplace to keep them cool until finish extinguishment.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2 Environmental Precautions

Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains.

6.3 Methods and materials for containment and cleaning up

If battery casing is dismantled, small amounts of electrolyte may leak. Collect all released material in a plastic lined container. Dispose off according to the local law and rules. Avoid leached substances to get into the earth, canalization or waters. Pick up and transfer to properly labeled containers.

7. Handling and storage

7.1 Precautions for safe handling

Always follow the warning information on the batteries and in the manuals of devices. Only use the recommended battery types. Keep batteries away from children. For devices to be used by children, the battery casing should be protected against unauthorized access. Unpacked batteries shall not lie about in bulk. In case of battery change always replace all batteries by new ones of identical type and brand. Do not swallow batteries. Do not throw batteries into water. Do not throw batteries into fire. Avoid deep discharge. Do not short-circuit batteries. Use recommended charging time and current.

7.2 Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials. It is recommended at -10 ... +45 °C for 1 month storage, at -10 ... +35 °C for 3 months storage. Do not storage the Battery haphazardly in a box or drawer where they may short-circuit each other or be short-circuited by other metal objects.

8. Exposure controls / personal protection

8.1 Controls parameters

Exposure Guidelines

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Nickel 7440-02-0	TWA: 1.5 mg/m ³	TWA: 1 mg/m ³ (vacated) TWA: 1 mg/m ³	IDLH: 10 mg/m ³ TWA: 0.015 mg/m ³
Manganese 7439-96-5	TWA: 0.2 mg/m ³		TWA: 1 mg/m ³ STEL: 3 mg/m ³
Cobalt 7440-48-4	TWA: 0.02 mg/m ³	TWA: 0.1 mg/m ³	TWA: 0.05 mg/m ³
Aluminum 7429-90-5	TWA: 1 mg/m ³ respirable fraction	TWA: 15 mg/m ³ total dust TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 15 mg/m ³ total dust (vacated) TWA: 5 mg/m ³ respirable fraction (vacated) TWA: 5 mg/m ³ Al Aluminum	TWA: 10 mg/m ³ totaldust TWA: 5 mg/m ³ respirable dust
Potassium hydroxide 1310-58-3	Ceiling: 2 mg/m ³		Ceiling: 2 mg/m ³
Sodium hydroxide 1310-73-2	Ceiling: 2 mg/m ³	TWA: 2 mg/m ³	Ceiling: 2 mg/m ³

ACGIH TLV: American Conference of Governmental Industrial Hygienists -Threshold Limit Value
OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits
NIOSH IDLH Immediately Dangerous to Life or Health

8.2 Appropriate engineering controls

Engineering Measures:

1. Showers
2. Eyewash stations
3. Ventilation systems

8.3 Individual protection measures, such as personal protective equipment

Eye/Face Protection: Not necessary under normal conditions, wear safety glasses if handling an open or leaking battery.

Skin and body Protection: Not necessary under normal conditions, Wear protective gloves and protective clothing such as long sleeved clothing, impervious gloves, chemical resistant apron, and antistatic boots if handling an open or leaking battery.

Respiratory Protection: Not necessary under normal conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink, or smoke in work area. Maintain good housekeeping.

9. Physical and chemical properties

Appearance	Green Solid
Odor	Odorless
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	Not applicable.
Evaporation rate	Not applicable.
Flammability	Non flammable.
Upper/lower flammability or explosive limits	Not available.
Vapor pressure	Not applicable.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	Insoluble in water.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	130 °C
Decomposition temperature	Not available.
Viscosity	Not available.

10. Stability and reactivity

10.1 Reactivity

Stable under recommended storage and handling conditions.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of hazardous reactions

When heated above 150 °C the risk of rupture occurs. Due to special safety construction, rupture implies cont release of pressure without ignition.

10.4 Conditions to avoid

Do not subject Ni-MH Battery to mechanical shock. Keep away from open flames, high temperature.

10.5 Incompatible materials

Strong oxidizer, strong acid.

10.6 Hazardous decomposition products

Under fire conditions, the electrode materials can form carcinogenic nickel and cobalt oxides.

11. Toxicological information

11.1 Information on the likely routes of exposure

Inhalation: Inhalation of a large number of vapors or fumes released due to heat may cause respiratory.

Ingestion: Ingestion of battery contents may cause mouth, throat and intestinal burns and damage.

Skin contact: Contact with battery electrolyte may cause burns and skin irritation.

Eye contact: Contact with battery electrolyte may cause burns. Eye damage is possible.

Under normal conditions (during charge and discharge) release of ingredients does not occur.

If accidental release occurs see information in section 2, and 4. Swallowing of a battery can be harmful. Call the local Poison Control Centre for advice and follow-up.

11.2 Information on toxicological characteristics

Acute toxicity: No data available.

Skin corrosion/irritation: The liquid in the battery irritates.

Serious eye damage/irritation: The liquid in the battery irritates.

Respiratory sensitization: The liquid in the battery may cause sensitization to some person.

Skin sensitization: The liquid in the battery may cause sensitization to some person.

Carcinogenicity: No data available.

Germ Cell Mutagenicity: No data available.

Reproductive Toxicity: No data available.

STOT-Single Exposure: No data available.

STOT-Repeated Exposure: No data available.

Aspiration Hazard: No data available.

11.3 Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization: No data available.

Mutagenic Effects: No data available.

Carcinogenicity: No data available.

Reproductive Toxicity: No data available.

Chronic Toxicity: No data available.

Target Organ Effects: No data available.

Aspiration Hazard: No data available.

12. Ecological information

12.1 Reactivity

Water hazard class 1(Self-assessment): slightly hazardous for water.

12.2 Persistence and Degradability

No information available.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Other adverse effects

No information available.

13. Disposal considerations

13.1 Safe handling and methods of disposal

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Local regulations may be more stringent than regional or national requirements.

Product disposal recommendation: Observe local, state and federal laws and regulations.

Packaging disposal recommendation: Be aware discarded batteries may cause fire, tape the

battery terminals to insulate them. Don't disassembly the battery. Containers may be recycled or re-used. Observe local, state and federal laws and regulations.

The potential effects on the environment and human health of the substances used in batteries and accumulators; the desirability of not disposing of waste batteries and accumulators as unsorted municipal waste and of participating in their separate collection so as to facilitate treatment and recycling.

14. Transport information

This battery is a Nickel-Metal Hydride Battery, it belongs to non-spillable battery. According to 2019 IATA DGR 60th edition, The International Maritime Dangerous Goods (IMDG Code (inc Amdt 38-16)), this battery can be classified as not restricted items.

- Not a hazard material or hazard good for transportation.
- Separate nickel metal hydride batteries when shipping to prevent short-circuiting, they should be packed in strong for support during transport, take in a cargo of them without falling, dropping and breakage.
- Prevent collapse or cargo piles and wet by rain, the container must be handled carefully.
- Do not give shocks that result in a mark of hitting on a cell .
- Please refer to Section 7 – Handling and storage.
- Not regulated for transport: by car, by railway, by road

UN No.		3496
Name and description		Batteries, nickel-metal hydride
Class or division		9
Subsidiary risk /		/
Un packing group		/
Special provision		A199 ^④
Limited and excepted quantities	7 ^①	0
	7 ^②	E0 ^③
Packing and IBCs	Packing instruction	N/ N/A
	Special packing provisions	/
Portable tanks and bulk containers	Instructions	/
	Special provisions	/

^① A123: This entry applies to Batteries, electric storage, not otherwise listed in Subsection 4.2-List of Dangerous Goods.

^② "0" for each entry not permitted to be transported in accordance with this chapter.

^③ E0: Not permitted as excepted quantity.

^④ A199: Subject to these regulations only when transport by sea.

15. Regulatory information

OSHA hazard communication standard (29 CFR 1910.1200)

Hazardous	No
Non-hazardous	Yes

16. Other information

16.1 Preparation and revision information

Date of previous revision: Not applicable.

Date of this revision: 2019-01-01

Revision summary: The first New SDS

16.2 Abbreviations and acronyms

TSCA: Toxic Substances Control Act, The American chemical inventory.

DSL: Domestic Substances List

EINECS: European Inventory of Existing Commercial chemical Substances

ENCS: Japanese Existing and New Chemical Substances

ECL: Existing Chemicals List, the Korean chemical inventory

IECSC: Inventory of existing chemical substances in China.

16.3 Disclaimer

Because all of our batteries are defined as „articles“, they are exempted from the requirements of the Hazard Communication Standard. The information in this SDS is provided all the relevant data fully and truly. However, the information is provided without any warranty on their absolute extensiveness and accuracy. This SDS was prepared to provide safety preventive measures for the users who have got professional training. The personal user who obtained this SDS should make independent judgment for the applicability of this SDS under special conditions. In these special cases, we do not assume responsibility for the damage.