



**CENTRE TESTING INTERNATIONAL**

**M S D S**

Nickel Hydride Battery





# Material Safety Data Sheet

According to Regulation (EU) No. 1907/2006 (REACH), Annex II  
(COMMISSION REGULATION (EU) No 453/2010)

Version: 1.0/EN

Revision date: 27/06/2012

Product name: Nickel Metal Hydride Battery

Printing date: 27/06/2012

## Section 1: Identification of the substance/mixture and of the company/undertaking

### 1.1 Product identifier

Product name: Nickel Metal Hydride Battery  
REACH Reg. No.: No registration number is given.

### 1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses:  
Uses advised against: No uses advised against.

## Section 2: Hazards identification

### 2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008[CLP]

This product is not classified as hazardous.

Classification according to Directive 67/548/EEC[DSD] or Directive 1999/45/EC[DPD]

This product is not classified as hazardous.

### 2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 [CLP]

Hazard pictogram(s): No pictogram is used.  
Signal word: No signal word is used.  
Hazard statements: No hazard statement.



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**Precautionary statements:** No precautionary statement.

**Supplemental Hazard information (EUH):**

No information available.

**Special rules for supplemental label elements for certain mixtures:**

No information available.

## 2.3 Other hazards

No information available.

## Section 3: Composition/information on ingredients

### 3.1 Substance/Preparation information

**Ingredients information:**

Ingredient name	CAS No.	Classification under DSD	Classification under CLP	% (w/w)
Nickel dihydroxide	12054-48-7	Carc. Cat. 1; R49 Repr. Cat. 2; R61 Muta. Cat. 3; R68 T; R48/23 Xn; R20/22 Xi; R38 R42/43 N; R50-53	Carc. 1A; H350i Repr. 1B; H360D Muta. 2; H341 STOT RE 1; H372 Acute Tox. 4; H332 Acute Tox. 4; H302 Skin Irrit. 2; H315 Resp. Sens. 1; H334 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	22.7
Cobalt oxide	1307-96-6	Xn; R22 R43 N; R50-53	Acute Tox. 4; H302 Skin Sens. 1; H317 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	1.8
Nickel powder	7440-02-0	Carc. Cat. 3; R40 T; R48/23 R43 R52-53	Carc. 2; H351 STOT RE 1; H372 Skin Sens. 1; H317 Aquatic Chronic 3; H412	0.8
Hydrogen storage alloy	N/A	Not classified.	Not classified.	34.4
Potassium hydroxide	1310-58-3	Xn; R22 C; R35	Acute Tox. 4; H302 Skin Corr. 1A; H314	4.4
Lithium hydroxide	1310-65-2	Xn; R22 C; R34 R52/53	Acute Tox. 4; H302 Skin Corr. 1B; H314 Aquatic Chronic 3; H412	0.4
Nickel	7440-02-0	Carc. Cat. 3; R40 T; R48/23	Carc. 2; H351 STOT RE 1; H372	5.5



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		R43 R52-53	Skin Sens. 1; H317 Aquatic Chronic 3; H412	
Polypropylene	9003-07-0	Not classified.	Not classified.	3.4
Iron	7439-89-6	Not classified.	Not classified.	26.6

Remark: The battery is neither substance nor mixture but a finished product. It has no risk to life and health under normal use or transportation because ingredients of battery are not leaked out by virtue of hermetical sealing with metal case. The electrolyte is corrosive. Contact with internal components may cause irritation or severe burns. Irritating to eyes, respiratory system, and skin.

Full text of R-phrase(s) and H-statement(s): see section 16.

## Section 4: First aid measures

### 4.1 Description of first aid measures

**General notes:** In all cases of doubt, or when symptoms persist, seek medical attention.

**Following inhalation:**

If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or doctor / physician.

**Following skin contact:**

Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.

**Following eye contact:**

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.

**Following ingestion:**

If swallowed, give large amounts of water. Do NOT induce vomiting or aspiration into the lungs may occur and can cause permanent injury or death.

**Notes for the doctor:**

Treat symptomatically and supportively.

Treatment may vary with condition of victim and specifics of incident.

### 4.2 Most important symptoms and effects, both acute and delayed

Direct contact of internal electrolyte gel with eyes may cause severe burns or blindness.

Direct contact of internal electrolyte gel with the skin may cause skin irritation or damaging burns.

### 4.3 Indication of the immediate medical attention and special treatment needed

No information available.

## Section 5: Fire-fighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media:**

Dry chemical, alcohol-resistant foam, powder, carbon dioxide.



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**Unsuitable extinguishing media:**

For this substance no limitations of extinguishing agents are given.

**5.2 Special hazards arising from the substance or mixture**

Risk of explosion by fire is anticipated if batteries are disposed of in fire. Firefighting water runoff and dilution water may be toxic and corrosive and may cause adverse environmental impacts.

**5.3 Advice for fire-fighters**

Do not stay in dangerous zone without self-contained breathing apparatus.

In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing.

Prevent fire-fighting water from entering surface water or groundwater.

## **Section 6: Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**

Refer to SECTION 8 for personal protective equipment. Prevention of skin and eye contact. Ensure adequate ventilation. Remove all sources of ignition.

**6.2 Environmental precautions**

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Discharge into the environment must be avoided.

**6.3 Methods and material for containment and cleaning up**

Add neutralizer/absorbent to spill area. Sweep or shovel spilled material and absorbent and place in approved container. Dispose of any non-recyclable materials in accordance with local, state, provincial or federal regulations.

**6.4 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 information on disposal.

## **Section 7: Handling and storage**

**7.1 Precautions for safe handling**

Keep containers tightly closed when not in use. If battery case is broken, avoid contact with internal components. Do not handle near heat, sparks, or open flames. Protect containers from physical damage to avoid leaks and spills. Place cardboard between layers of stacked batteries to avoid damage and short circuits. Do not allow conductive material to touch the battery terminals. A dangerous short-circuit may occur and cause battery failure and fire.

**7.2 Conditions for safe storage, including any incompatibilities**



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Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Keep away from combustible materials, organic chemicals, reducing substances, metals, strong oxidizers and water.

### 7.3 Specific end use(s)

Apart from the uses mentioned in SECTION 1.2 no other specific uses are stipulated.

## Section 8 : Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limit values:

Nickel powder (7440-02-0) Limit value - Eight hours (mg/m <sup>3</sup> )	Australia	1
	France	1
	Spain	1
	Sweden	0.5
	Switzerland	0.5 inhalable aerosol
	USA - OSHA	1
	USA - NIOSH	0.015
Potassium hydroxide (1310-58-3) Limit value - Eight hours (mg/m <sup>3</sup> )	Austria	2 inhalable aerosol
	Spain	2
	Sweden	1
	Switzerland	2 inhalable aerosol

#### DNEL (Derived No Effect Level) for workers and the general population:

Not available.

#### PNEC(Predicted No Effect Concentration) values:

Not available.

### 8.2 Exposure controls

#### Appropriate engineering controls:

There is no need of personal protective equipment on regular handling and storage. In the event, however, a large amount of electrolyte should be released by mechanical or electrical abuse, use the protections as shown below.

#### Personal protective equipment:

Eye and face protection: Wear appropriate protective eyeglasses or chemical safety goggles.

Skin protection: Wear appropriate protective clothing and gloves to prevent skin exposure.

Respiratory protection: In case of inadequate ventilation wear respiratory protection.

#### Environmental exposure controls:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Discharge into the environment must be avoided.



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## Section 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Appearance:	Solid
Colour:	Colorized
Odour:	Odourless
pH:	No data available.
Melting point:	No data available.
Boiling point:	No data available.
Density:	No data available.
Vapour pressure:	No data available.
Partition coefficient (n -octanol/water):	No data available.
Solubility in water:	Insoluble in water
Flash point:	Not applicable.
Auto-ignition temperature:	No data available.
Flammability:	No data available.
Decomposition temperature:	No data available.
Explosive properties:	Not predicted to be explosive.
Oxidising properties:	Not predicted to have oxidising properties.

### 9.2 Other information

No data available.

## Section 10: Stability and reactivity

### 10.1 Reactivity

Stable under recommended storage and handling conditions (see section 7, handling and storage).

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

When a battery is heated strongly by the surrounding fire, acrid or harmful fume may be emitted.

### 10.4 Conditions to avoid

External short circuit of battery, deformation by crush, direct sunlight, high humidity, heating, sources of ignition.

### 10.5 Incompatible materials

Strong bases, combustible organic materials, reducing agents, strong oxidizers, and water.

### 10.6 Hazardous decomposition products



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Irritating or toxic fumes and gases, metallic oxide.

## Section 11: Toxicological information

### 11.1 Toxicokinetics, metabolism and distribution

No relevant information available.

### 11.2 Information on toxicological effects

**Acute toxicity:**

No data available.

**Skin corrosion/irritation:**

No data available.

**Serious eye damage/irritation:**

No data available.

**Respiratory or skin sensitization:**

No data available.

**CMR effects (Carcinogenicity, Mutagenicity and Toxicity for Reproduction):**

No data available.

**STOT-single exposure and repeated exposure:**

No data available.

**Additional information:**

No data available.

## Section 12: Ecological information

### 12.1 Toxicity

No data available.

### 12.2 Persistence and degradability

No data available on biodegradation.

### 12.3 Bioaccumulative potential

Based on best current information, there is no data known associated with this product.

### 12.4 Mobility in soil

No information available.

### 12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment information is not available as chemical safety assessment not conducted.

### 12.6 Other adverse effects

No information available.



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## Section 13: Disposal considerations

### 13.1 Waste treatment methods

Do not throw out a used battery cell. Recycle through the recycling company if possible. Following local, State/Provincial, and Federal/National regulations applicable to end-of-life characteristics will be the responsibility of the end-user.

## Section 14: Transport information

### 14.1 Land transport (ADR/RID/GGVSE)

Proper Shipping Name: BATTERIES, NICKEL-METAL HYDRIDE  
Class: 9  
UN-No.: 3496

### 14.2 Sea transport (IMDG-Code/GGVSee)

Proper Shipping Name: BATTERIES, NICKEL-METAL HYDRIDE  
Class: 9  
UN-No.: 3496  
Marine pollutant: No

### 14.3 Air transport (ICAO-TI/IATA-DGR)

Proper Shipping Name: BATTERIES, NICKEL-METAL HYDRIDE  
Class: 9  
UN-No.: 3496

### 14.4 Additional information

Mark/Label(s) for transport:



## Section 15: Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### EU regulation:

Authorisations: No information available.

Restrictions on use: No information available.

EINECS: CAS# 12054-48-7 & 1307-96-6 & 7440-02-0 & 1310-58-3 & 1310-65-2 & 7439-89-6 are listed in the inventory.

DSD (67/548/EEC): CAS# 12054-48-7 & 1307-96-6 & 7440-02-0 & 1310-58-3 &



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1310-65-2 are listed in the Annex I.

## Other chemical regulation:

CAS No.	USA	Canada	Australia	Korea	Japan	China
	TSCA	DSL	AICS	ECL	ENCS	IECSC
12054-48-7	Listed	Listed	Listed	Listed	Listed	Listed
1307-96-6	Listed	Listed	Listed	Listed	Listed	Listed
7440-02-0	Listed	Listed	Listed	Listed	Listed	Listed
1310-58-3	Listed	Listed	Listed	Listed	Listed	Listed
1310-65-2	Listed	Listed	Listed	Listed	Listed	Listed
7439-89-6	Listed	Listed	Listed	Listed	Not listed	Listed
9003-07-0	Listed	Listed	Listed	Listed	Listed	Listed

## 15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

## Section 16: Other information

### 16.1 Revision Information:

Date of the previous revision: Not applicable.

Date of this revision: 27/06/2012.

Revision summary: The first new SDS

### 16.2 Abbreviations and acronyms

- CLP:** EU regulation (EC) No 1272/2008 on classification, labelling and packaging of chemical substances and mixtures.
- CAS:** Chemical Abstracts Service (division of the American Chemical Society).
- EINECS:** European Inventory of Existing Commercial Chemical Substances.
- RID:** European Rail Transport.
- IMDG:** International Maritime Code for Dangerous Goods.
- IATA:** International Air Transport Association.
- OSHA:** The United States Occupational Safety and Health Administration.
- TSCA:** Toxic Substances Control Act, The American chemical inventory.
- DSD:** Dangerous Substance Directive (67/548/EEC).
- IECSC:** Inventory of existing chemical substances in China.
- DSL:** Domestic Substances List, The Canadian chemical inventory.
- AICS:** The Australian Inventory of Chemical Substances.
- ECL:** Existing Chemicals List, the Korean chemical inventory.
- ENCS:** Japanese Existing and New Chemical Substances.

### 16.3 Key literature references and sources for data

ESIS: European chemical Substances Information System.

HSDB: Hazardous Substances Data Bank.

ICSC: International Chemical Safety Cards.



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## 16.4 Relevant R-phrases and H-statements

R-phrases(code and full text):

R20/22: Harmful by inhalation and if swallowed.

R22: Harmful if swallowed.

R34: Causes burns.

R35: Causes severe burns.

R38: Irritating to skin.

R40: Limited evidence of a carcinogenic effect.

R42/43: May cause sensitization by inhalation and skin contact.

R43: May cause sensitization by skin contact.

R48/23: Toxic: danger of serious damage to health by prolonged exposure through inhalation.

R49: May cause cancer by 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.

R61: May cause harm to the unborn child.

R68: Possible risk of irreversible effects.

H-statements (code and full text):

H302: Harmful if swallowed.

H314: Causes severe skin burns and eye damage.

H315: Causes skin irritation.

H317: May cause an allergic skin reaction.

H332: Harmful if inhaled.

H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H350: May cause cancer.

H351: Suspected of causing cancer.

H360: May damage fertility or the unborn child.

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.

H412: Harmful to aquatic life with long lasting effects.

## 16.5 Training advice

Provide adequate information, instruction and training for operators.

## 16.6 Declare to reader

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. According to REACH Article 31(5), the SDS shall be supplied in an official language of the Member State(s) where the substance or mixture is placed on the market, unless the recipient Member State(s) concerned provide otherwise. It



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should also be noted that this SDS is applicable to the countries with English as an official language.

----- End of the SDS -----