Material Safety Data Sheet

1. Product & Company Identification and Identification of the substance/mixture

Product:	Ni-Zn Rechargeable Battery (size AA, HR06)
Manufacturer:	Conrad Electronic SE
Nominal capacity:	1500 mAh
Nominal voltage:	1,6 V
Address:	Klaus-Conrad-Strasse 1, D-92240 Hirschau
Telephone:	+49 (0) 9604 / 40 - 8988
Date of issue:	30.07.2014

Relevant identified uses of the substance or mixture and uses advised against: Application of the substance / the preparation: household & industrial power

2. Hazards identification

2.1 Classfication of the substance or mixture

Hazard description:

Not Applicable

Information concerning particular hazards for human and environment:

A sealed 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.

R 20/22 Harmful by inhalation and if swallowed.

R 40 Limited evidence of a carcinogenic effect.

R 43 May cause sensitization by skin contact.

R 48 Danger of serious damage to health by prolonged exposure.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Classification system:

The classification is according to the latest edition of the EU Directive 67/548/EEC, 1999/45/EC and Regulation 1272/2008/EC, and extended by company and literature data.

2.2 Label elements

GHS label elements: Void

2.3 Other hazards:

Not availableeye damage.

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3. Composition/information on ingredients

3.1 Substance: Not aplicable. Please refer to 3.2 for more information.

3.2 Mixture: Please view below

Chemical characterization

Description:

Mixture of the substances listed below with nonhazardous additions.

For the wording of listed risk phrases refer to section 16.

Dangerous components		
CAS: 12054-48-7 EINECS: 235-008-5 EU number: 028-008-00-X	nickel dihydroxide Carc. Cat. 3; Xn, Xi, N; R 20/22-40-43-50/53 Warning: 3.6/2; 4.1.A/1, 4.1.C/1; 3.1.O/4, 3.1.I/4, 3.4.S/1	48,0%
CAS: 1314-13-2 EINECS: 215-222-5 EU number: 030-013-00-7	zinc oxide N; R 50/53 Warning: 4.1.A/1, 4.1.C/1	36,5%
CAS: 7440-66-6 EINECS: 231-175-3 EU number: 030-002-00-7	zinc powder -zinc dust (stabilized) N; R 50/53 Warning: 4.1.A/1, 4.1.C/1	10%
CAS: 7440-02-0 EINECS: 231-111-4 EU number: 028-002-00-7	nickel Carc. Cat. 3; T, Xi; R 23-40-43-48 Warning: 3.6/2; 3.4.S/1	2,5%
Non-Dangerous components		
CAS: 1304-76-3 EINECS: 215-134-7	dibismuth trioxide	1,2%
CAS: 1344-28-1 EINECS: 215-691-6	aluminium oxide	1,8%

Remark:

Nickel dihydroxide (CAS No.: 12054-48-7)	Synonym: $Ni(OH)_2$
Zinc oxide (CAS No.: 1314-13-2)	Synonym: ZnO
Zinc powder - zinc dust (stabilised) (CAS No.: 7440-66-6)	Synonym: Zn
Nickel (CAS No.: 7440-02-0)	Synonym: Ni
Dibismuth trioxide (CAS No.: 1304-76-3)	Synonym: Bi_2O_3
Aluminium oxide (CAS No.: 1344-28-1)	Synonym: Al_2O_3

4. First aid measures

4.1 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.

Remove breathing equipment only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation:

Supply fresh air or oxygen; call for 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.

After eye contact:

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing:

Call for a doctor immediately.

Information for doctor:

The following symptoms may occur: Not available

Hazards: Not available

Treatment: Not available

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

Not available

4.3 Indication of any immediate medical attention and special treatment needed:

Not available

5. Fire fighting measures

5.1 Extinguishing media:

Suitable extinguishing agents:

CO_2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

5.2 Special hazards arising from the substance or mixture:

Battery may burst and release hazardous decomposition products when exposed to a fire situation.

Protective equipment: Mouth respiratory protective device.

5.3 Advice for firefighters:

Cool fire exposed batteries to prevent rupture.

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6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Not required.

6.2 Environmental precautions:

Do not allow product to reach sewage system or any water sourse.

Inform respective authorities in case of seepage into water course or sewage system.

Do not allow to enter sewers/ surface or ground water.

6.3 Methods and material for containment and cleaning up:

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

6.4 Reference to other sections:

Please view below.

7. Handling and storage

7.1 Precautions for safe handling:

Thorough dedusting.

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of dust.

Information about fire - and explosion protection:

Prevent impact and friction.

Protect from heat.

Protect against electrostatic charges.

7.2 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: Store in cool, dry conditions in well sealed receptacles.

Incompatibilities: Not available

7.3 Specific end use(s):

Not available

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8. Exposure controls, personal protection

8.1 Control parameters

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

Ingredients with limit values that require monitoring at the workplace:	
12054-48-7 nickel dihydroxide	
WEL (Great Britain)	0,5 mg/m³ as Ni
VME (France)	1 mg/m³ C3
1314-13-2 zinc oxide	
MAK (Germany)	1A mg/m³ Rauch
VME (France)	5* 10** mg/m³ *fumées **poussières
7440-02-0 nickel	
WEL (Great Britain)	0,5 mg/m³ as Ni
MAK (Germany)	einatembare Fraktion; vgl.Abschn.XIII
VME (France)	1 mg/m³ C3
1344-28-1 aluminium oxide	
WEL (Great Britain)	10* 4** mg/m³ *inhalable dust **respirable dust
AGW (Germany)	3* 10** mg/m³ 2(II);*alveolengängige **einatembare Fraktion; AGS
VME (France)	10 mg/m³

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

8.2 Exposure controls: Not available

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.

Store protective clothing separately.

Avoid contact with the skin.

Avoid contact with the eyes and skin.

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:

Not required.

9. Chemical and Physical Properties

9.1 Information on basic physical and chemical properties:

General information

Form: Solid

Colour: Silver grey

Odour: Odourless

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: Product does not present an explosion hazard.

Explosion limits:	Lower:	Not available
	Upper:	Not available

Oxidizing properties: Not available

Density: Not available

Relative density: Not available

Vapour density: Not available

Evaporation rate: Not available

Solubility in / Miscibility with water: Not available

pH-value: Not available

Partition coefficient (n-octanol/water): Not available

Segregation coefficient (n-octanol/water): Not available

Viscosity: Dynamic: Not available.

9.2 Other information:

Not available

10. Stability and reactivity

10.1 Reactivity:

No decomposition if used according to specifications.

10.2 Chemical stability:

Not available

10.3 Possibility of hazardous reactions:

Not available

10.4 Conditions to avoid:

Not available

10.5 Incompatible materials:

Not available

Materials to be avoided:

Dangerous reactions: No dangerous reactions known.

10.6 Hazardous decomposition products: Not available

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity:

LD/LC50 values relevant for classification:

1314-13-2 zinc oxide

Oral LD50 > 5000 mg/kg (rat)

1304-76-3 dibismuth trioxide

Oral LD50 5000 mg/kg (rat)

Primary irritant effect **- on the skin:** Irritating effect possible.

- on the eye: Irritating effect possible.

Sensitization: Sensitization possible through inhalation.

Sensitization possible through skin contact.

Additional toxicological information:

The product shows the following dangers if electrolyte leakage occours according to the calculation method of the General EU Classification Guidelines for Preparations as issued in the latest version:

- Toxic

- Harmful

- Irritant

- Carcinogenic if inhaled.

Toxicokinetics, metabolism and distribution: Not available

Acute effects (acute toxicity, irritation and corrosivity): Not available

Repeated dose toxicity: Not available

12. Ecological information

12.1 Toxicity: Not available

12.2 Persistence and degradability: Not available

12.3 Bioaccumulative potential: Not available

12.4 Mobility in soil: Not available

12.5 Results of PBT and vPvB assessment: Not available

12.6 Other adverse effects: Not available

Additional ecological information:

General notes:

Water hazard class 3 (German Regulation) (Self-assessment): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Very toxic for aquatic organisms.

13. Disposal considerations

13.1 Waste treatment methods

Product

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

14.1 Land transport ADR/RID (cross-border)

14.1.1 ADR/RID class:	-
Danger code (Kemler):	-
14.1.2 UN-Number:	-
14.1.3 Packaging group:	-
14.1.4 Description of goods:	-
Limited quantities (LQ):	-
Transport category:	-

14.2 Maritime transport IMDG

14.2.1 IMDG Class:	-
14.2.2 UN Number:	-
Label:	-
14.2.3 Packaging group:	-
EMS Number:	-
Marine pollutant:	No
14.2.4 Proper shipping name:	-

14.3 Air transport ICAO-TI and IATA-DGR

14.3.1 ICAO/IATA Class:	-
14.3.2 UN/ID Number:	-
Label:	-
14.3.3 Packaging group:	-
14.3.4 Proper shipping name:	-
14.4 Environmental hazards:	Not available

14.5 Special precautions for users:

Batteries may explode or leak if inserted improperly, recharged or disposed of in fire. Do not mix with nonalkaline or used batteries.

14.6 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

The batteries must be packaged in a manner that prevents the generation of a dangerous quantity of heat and short circuits.

15. Regulatory Information

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

Sara

Section 335 (extremely hazadous substances):

None of the ingredients is listed.

Section 313 (specific toxic chemical listings):

12054-48-7 nickel dihydroxide
7440-02-0 nickel
1344-28-1 aluminium oxide

TSCA (Toxic Substances Control Act):

12054-48-7 nickel dihydroxide
1314-13-2 zinc oxide
7440-02-0 nickel
1344-28-1 aluminium oxide
1304-76-3 dibismuth trioxide

Proposition 65

Chemical known to cause cancer:

12054-48-7 nickel dihydroxide
7440-02-0 nickel

Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

Cancerogenity categories

EPA(Environmental Protection Agency)

1314-13-2	zinc oxide	II
7440-66-6	zinc powder -zinc dust (stabilized)	II

IARC(International Agency for Research on Cancer)

12054-48-7	nickel dihydroxide	1
7440-02-0	nickel	2B

NTP(National toxicology Program)

12054-48-7	nickel dihydroxide	K
7440-02-0	nickel	R

TLV(Threshold Limit Value established by ACGIH)

12054-48-7	nickel dihydroxide	A1
7440-02-0	nickel	A5
1344-28-1	aluminium oxide	A4

MAK(German Maximum Workplace Concentration)

12054-48-7	nickel dihydroxide	1
7440-02-0	nickel	1
1344-28-1	aluminium oxide	2

NIOSH-Ca(National Institution for Occupational Safety & Health)

12054-48-7 nickel dihydroxide
7440-02-0 nickel

OSHA-Ca(Occupational Safety & Health Administration)

None of the ingredients is listed.

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Labelling according to EU guidelines:

The substance is not subject to classification according to Directive 67/548, 1999/45/EC and 1272/2008/EC. Observe the general safety regulations when handling chemicals.

Hazard-determining components of labelling:

nickel dihydroxide

nickel

Risk phrases:

20/22 Harmful by inhalation and if swallowed.

40 Limited evidence of a carcinogenic effect.

43 May cause sensitization by skin contact.

48 Danger of serious damage to health by prolonged exposure.

50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases:

2 Keep out of the reach of children.

29/56 Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.

36/37 Wear suitable protective clothing and gloves.

46 If swallowed, seek medical advice immediately and show this container or label.

National regulations

Candidate List of Substances of very high concern (SVHC) according to ECHA (18/06/2010)

None of the igredients is listed

REACH Regulation Annex XVII Restriction List

None of the igredients is listed

REACH Regulation Annex XIV Authorization Recommendation List

None of the igredients is listed

15.2 Chemical safety assessment:

Not available

16. Other Information

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

DISCLAIMER OF LIABILITY

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Relevant R-phrases

20/22	Harmful by inhalation and if swallowed.
23	Toxic by inhalation.
40	Limited evidence of a carcinogenic effect.
43	May cause sensitization by skin contact.
48	Danger of serious damage to health by prolonged exposure.
50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Abbreviations and acronyms:

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

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

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent