

Material Safety Data Sheet

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

| | |
|--------------------------|---------------------------------------|
| Product: | NiMH rechargeable battery, AAA size |
| Manufacturer: | Conrad Electronic SE |
| Nominal voltage: | 1.2 V |
| Nominal capacity: | 800 mAh |
| Address: | Klaus-Conrad-Str. 1, D-92240 Hirschau |
| Telephone: | +49 (0) 9604 / 40 - 8988 |
| Date of issue: | 26.12.2019 |

1.1 Product identifier

Trade name: Ni-MH Battery

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

Application of the substance / the mixture: Household & Industrial power

Remark:

This sample is likely to be classified as article with substances not intended to be released and is out of scope of a SDS as set out in Regulation (EC) No 1907/2006. This SDS is generated for client's reference only.

2. Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008



GHS02 flame

Flam. Sol. 1 H228 Flammable solid.



GHS08 health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 Muta. 2 H341 Suspected of causing genetic defects.
 Carc. 1A H350i May cause cancer by inhalation.
 Repr. 1B H360D May damage the unborn child.
 STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.

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GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2 H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

Information concerning particular hazards for human and environment:

The product has to be labelled due to the calculation procedure of Regulation (EC) No.1272/2008.

Classification system:

The classification is according to the latest edition of EU Regulation (EC) No. 1272/2008, and extended by company and literature data.

2.2 Label elements

Labelling according to Regulation (EC) No. 1272/2008

The product is classified and labelled according to the CLP regulation.

Hazard pictograms



GHS02



GHS07



GHS08



GHS09

Signal word: Danger

Hazard-determining components of labelling:

Nickel dihydroxide

Nickel powder (particle diameter < 1 mm)

Cobalt

Potassium hydroxide

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Hazard statements

| | |
|-------|--|
| H228 | Flammable solid. |
| H302 | Harmful if swallowed. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H317 | May cause an allergic skin reaction. |
| H341 | Suspected of causing genetic defects. |
| H350i | May cause cancer by inhalation. |
| H360D | May damage the unborn child. |
| H372 | Causes damage to organs through prolonged or repeated exposure. |
| H410 | Very toxic to aquatic life with long lasting effects. |

Precautionary statements

| | |
|----------------|--|
| P101 | If medical advice is needed, have product container or label at hand. |
| P102 | Keep out of reach of children. |
| P103 | Read label before use. |
| P210 | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P241 | Use explosion-proof (electrical/ventilating/lighting) equipment. |
| P260 | Do not breathe dust/fume/fas/mist/vapours/spray. |
| P305+P351+P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P405 | Store locked up. |
| P501 | Dispose of contents/container in accordance with local/regional/national/international regulations. |

Additional information:

EUH014 Reacts violently with water.

Restricted to professional users.

2.3 Other hazards:

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

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3. Composition/information on ingredients

3.2 Mixtures

Description:

Mixture of the substances listed below with nonhazardous additions.

For the wording of the listed hazard statements refer to section 16.

| Composition: | | |
|--|--|-------|
| CAS: 7440-02-0 EINECS: 231-111-4 Index number: 028-002-01-4 | Nickel powder (particle diameter < 1 mm) ☠ Carc. 2, H351; STOT RE 1, H372; ⚠ Skin Sens. 1, H317; Aquatic Chronic 3, H412 | 35.5% |
| CAS: 12054-48-7 EINECS: 235-008-5 Index number: 028-008-00-X | Nickel dihydroxide ☠ Resp. Sens. 1, H334; Muta. 2, H341; Carc. 1A, H350i; Repr. 1B, H360D; STOT RE 1, H372; ⚠ Aquatic Acute 1, H400; Aquatic Chronic 1, H410; ⚠ Acute Tox. 4, H302; Acute Tox. 4, H332; Skin Irrit. 2, H315; Skin Sens. 1, H317 | 28.5% |
| CAS: 7439-91-0 EINECS: 231-099-0 | Lanthanum ☠ Flam Sol. 1, H228 | 12.5% |
| CAS: 7440-45-1 EINECS: 231-154-9 | Cerium ☠ Flam. Sol. 1, H228 | 11.0% |
| CAS: 7440-48-4 EINECS: 231-158-0 Index number: 027-001-00-9 | Cobalt ☠ Resp. Sens. 1, H334; ⚠ Skin Sens. 1, H317; Aquatic Chronic 4, H413 | 7.6% |
| CAS: 7439-96-5 EINECS: 231-105-1 | Manganese ☠ Flam. Sol. 2, H228 | 3.0% |
| CAS: 1310-58-3 EINECS: 215-181-3 Index number: 019-002-00-8 | Potassium hydroxide ☠ Skin Corr. 1A, H314; ⚠ Acute Tox. 4, H302 | 1.0% |
| CAS: 1310-73-2 EINECS: 215-185-5 Index number: 011-002-00-6 | Sodium hydroxide ☠ Skin Corr. 1A, H314 | 0.5% |
| CAS: 1310-65-2 EINECS: 215-183-4 | Lithium hydroxide ☠ Skin Corr. 1A, H314; Eye Dam. 1, H318; ⚠ Acute Tox. 4, H302 | 0.3% |
| CAS: 7440-00-8 EINECS: 231-109-3 | Neodymium ☠ Flam. Sol. 2, H228; Water-react. 1, H260 | 0.1% |



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4. First aid measures

4.1 Description of first aid measures

General description:

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.

After eye contact:

Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

After swallowing:

Call for a doctor immediately.

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

No further relevant information available.

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

No further relevant information available.

5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing agents:

Extinguishing powder. Do not use water.

CO₂. Do not use water.

Sand. Do not use water.

Special powder for metal fires. Do not use water.

CO₂, sand, extinguishing powder. Do not use water.

Use fire extinguishing methods suitable to surrounding conditions.

For safety reasons unsuitable extinguishing agents:

Water

5.2 Special hazards arising from the substance or mixture:

During heating or in case of fire poisonous gases are produced.

5.3 Advice for firefighters

Protective equipment:

Mouth respiratory protective device.



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6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

6.2 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.

6.3 Methods and material for containment and cleaning up:

Dispose contaminated material as waste according to section 13.

Ensure adequate ventilation.

Do not flush with water or aqueous cleansing agents.

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 disposal information.

7. Handling and storage

7.1 Precautions for safe handling:

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

For the general occupational hygienic measures refer to Section 8.

Information about fire - and explosion protection:

Keep ignition sources away - Do not smoke.

Keep respiratory protective device available.

7.2 Conditions for safe storage, including any incompatibilities

Requirements to be met by storerooms and receptacles:

No special requirements.

Information about storage in one common storage facility:

Not required.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed receptacles

7.3 Specific end use(s):

No further relevant information available.

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8. Exposure controls/personal protection

8.1 Control parameters

Ingredients with limit values that require monitoring at the workplace:

7440-02-0 nickel powder (particle diameter < 1 mm) (35.5%)

WEL (Great Britain) Long-term value: 0.5 mg/m³ as Ni; Sk; Carc

AGW (Germany) Long-term value: 0.006A; 0.030E* mg/m³
8(II); AGS, 24, Sh, Y, 10*, 31*

VME (France) Long-term value: 1 mg/m³
C2

12054-48-7 nickel dihydroxide (28.5%)

WEL (Great Britain) Long-term value: 0.5 mg/m³ as Ni; Sk; Carc

AGW (Germany) Long-term value: 0.030E mg/m³
8(II); AGS, Sh, Y, 10, 24, 31

TRGS 910 (Germany) Short-term value: 0.006 (A) mg/m³
Long-term value: 0.006 (A) mg/m³
8, Konzentrationen beziehen sich auf Ni-Gehalt

VME (France) Long-term value: 1 mg/m³
C1A, M2, R1B

7440-48-4 cobalt (7.6%)

WEL (Great Britain) Long-term value: 0.1 mg/m³
as Co; Carc, Sen

MAK (Germany) einatembare Fraktion; vgl. Abschn.XIII

7439-96-5 manganese (3.0%)

IOELV (EU) Long-term value: 0.2* 0.05** mg/m³
as Mn; *inhalable, **respirable fraction

WEL (Great Britain) Long-term value: 0.2* 0.05** mg/m³
as Mn *inhalable fraction **respirable fraction

AGW (Germany) Long-term value: 0.02A; 0.2E mg/m³
8(II); DFG,Y,10, 20

1310-58-3 potassium hydroxide (1.0%)

WEL (Great Britain) Short-term value: 2 mg/m³

VME (France) Short-term value: 2 mg/m³

1310-73-2 sodium hydroxide (0.5%)

WEL (Great Britain) Short-term value: 2 mg/m³

MAK (Germany) vgl. Abschn. IIb

VME (France) Long-term value: 2 mg/m³

1310-65-2 Lithium hydroxide (0.3%)

WEL (Great Britain) Short-term value: 1 mg/m³

MAK (Germany) vgl. Abschn. IIb

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Regulatory information

WEL (Great Britain): EH40/2018

AGW (Germany): TRGS 900

VME (France): ED 984, 10.2016

MAK (Germany): MAK- und BAT-Liste

IOELV (EU): (EU) 2017/164

DNELs: Not available

PNECs: Not available

Ingredients with biological limit values:

7439-96-5 manganese

BGW (Germany) 20 µg/l

Untersuchungsmaterial: Vollblut

Probennahmezeitpunkt: bei Langzeitexposition: am Schichtende nach mehreren vorangegangenen Schichten, Expositionsende bzw. Schichtende

Parameter: Mangan

Additional information:

The lists valid during the making were used as basis.

8.2 Exposure controls

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

Appropriate engineering controls:

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 eyes and skin.

See Section 7 for information about design of technical facilities.

Personal protective equipment

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.

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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

Environmental exposure controls:

Control measures must be made in accordance with Community environmental protection legislation.

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9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

| | |
|------------------|----------------------------------|
| Form: | Solid, cylindrical (sealed unit) |
| Colour: | Silver grey |
| Odour: | Odourless |
| Odour threshold: | Not available |
| pH-value: | Not available |

Change in condition

| | |
|--|---|
| Melting point/Freezing point: | Not available |
| Initial boiling point and boiling range: | Not available |
| Flash point: | Not available |
| Flammability (solid, gas): | Contact with water liberates extremely flammable gases. |
| Auto-ignition temperature: | Not available |
| Decomposition temperature: | Not available |
| Self-igniting: | Product is not selfigniting. |
| Explosive properties: | Product does not present an explosion hazard. |
| Explosion limits: | Lower: Not available Upper: Not available |
| Oxidising properties: | Not available |
| Vapour pressure: | Not available |
| Density: | Not available |
| 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 |

9.2 Other information

No further relevant information available



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10. Stability and reactivity

10.1 Reactivity:

Data not available

10.2 Chemical stability:

Data not available

10.3 Possibility of hazardous reactions:

Contact with water releases flammable gases.

10.4 Conditions to avoid:

No further relevant information available.

10.5 Incompatible materials:

No further relevant information available

10.6 Hazardous decomposition products:

No dangerous decomposition products known.



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11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity:

Harmful if swallowed.

LD/LC50 values relevant for classification:

7440-48-4 cobalt Oral LD50 6,170 mg/kg (rat)

7439-96-5 manganese Oral LD50 9,000 mg/kg (rat)

Skin corrosion/irritation:

Causes skin irritation.

Serious eye damage/irritation:

Causes serious eye irritation.

Respiratory or skin sensitization:

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

May cause an allergic skin reaction.

Germ cell mutagenicity

Suspected of causing genetic defects.

Carcinogenicity

May cause cancer by inhalation.

Reproductive toxicity

May damage the unborn child.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard

Based on available data, the classification criteria are not met.



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12. Ecological information

12.1 Toxicity

Aquatic toxicity:

No further relevant information available.

12.2 Persistence and degradability:

No further relevant information available.

12.3 Bioaccumulative potential:

No further relevant information available.

12.4 Mobility in soil:

No further relevant information available.

12.5 Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

12.6 Other adverse effects

No further relevant information available.

12.7 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

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.

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14. Transport information

14.1 UN-Number

ADR/RID/ADN, IATA: Not applicable

IMDG: UN3496

14.2 UN proper shipping name

ADR/RID/ADN, IATA: Not applicable

IMDG: Batteries, nickel-metal hydride, MARINE POLLUTANT

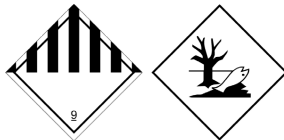
14.3 Transport hazard class(es)

ADR/RID/ADN, IATA

Class: Not applicable

Label: -

IMDG



Class: 9 Miscellaneous dangerous substances and articles.

Label: 9

14.4 Packing group

ADR/RID/ADN, IMDG, IATA: Not applicable

14.5 Environmental hazards

Marine pollutant: Symbol (fish and tree)

14.6 Special precautions for user:

Not applicable

Danger code (Kemler): -

EMS Number: F-A, S-I

Stowage Category: A

Stowage Code: SW1 Protected from sources of heat.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

14.8 Transport/Additional information:

Referring to the Certification for Safe Transport of Chemical Goods (Report No. 2020014782) issued by Shanghai Research Institute of Chemical Industry Testing Co., Ltd, the product is not restricted under IATA Dangerous Goods Regulations (DGR) 61th Edition Special Provision A199 (Effective Date: 2020-01-01) (upon supplier's information)

IMDG

Limited quantities (LQ): 0

Excepted quantities (EQ): Code: E0; Not permitted as Excepted Quantity

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15. Regulatory information

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

MAK (German Maximum Workplace Concentration)

| | | |
|------------|--|---|
| 7440-02-0 | nickel powder (particle diameter < 1 mm) | 1 |
| 12054-48-7 | nickel dihydroxide | 1 |
| 7440-48-4 | cobalt | 2 |

Directive 2012/18/EU

Named dangerous substances - ANNEX I: None of the ingredients is listed.

Seveso category: E1 Hazardous to the Aquatic Environment

O1 Substances or mixtures with hazard statement EUH014

Qualifying quantity (tonnes) for the application of lower-tier requirements: 100 t

Qualifying quantity (tonnes) for the application of upper-tier requirements: 200 t

National regulations:

Information about limitation of use:

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

Waterhazard class:

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

Other regulations, limitations and prohibitive regulations

SVHC Candidate List of REACH Regulation Annex XIV Authorisation (16/7/2019)

None of the ingredients is listed

REACH Regulation Annex XVII Restriction (20/06/2019): See Section 16 for information about restriction of use.

None of the ingredients is listed

REACH Regulation Annex XIV Authorisation List (13/6/2017)

None of the ingredients is listed

15.2 Chemical safety assessment:

A Chemical Safety Assessment has not been carried out.



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16. Other information

Relevant hazard statements

- H228 Flammable solid.
- H260 In contact with water releases flammable gases which may ignite spontaneously.
- H302 Harmful if swallowed.
- H314 Causes severe skin burns and eye damage.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage
- H332 Harmful if inhaled.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H341 Suspected of causing genetic defects.
- H350i May cause cancer by inhalation.
- H351 Suspected of causing cancer.
- H360D May damage 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.
- H413 May cause long lasting harmful effects to aquatic life.

| Classification according to Regulation (EC) No. 1272/2008 | |
|---|---|
| Flammable solids | Bridging principles |
| Acute toxicity - oral Skin corrosion/irritation Serious eye damage/eye irritation Respiratory sensitisation Skin sensitisation Germ cell mutagenicity Carcinogenicity Reproductive toxicity Specific target organ toxicity (repeated exposure) Hazardous to the aquatic environment - short-term(acute) aquatic hazard Hazardous to the aquatic environment - long-term(chronic) aquatic hazard | The classification of the mixture is generally based on the calculation method using substance data according to Regulation (EC) No. 1272/2008. |

The contents and format of this SDS are in accordance with Regulation (EC) No 1907/2006, 1272/2008 and Regulation (EU) No 2015/830.



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DISCLAIMER OF LIABILITY

The information in this 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 any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable.

Remark:

* This sample is likely to be classified as article with substances not intended to be released and is out of scope of a SDS as set out in Regulation (EC) No 1907/2006. This SDS is generated for client's reference only.

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)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

GHS: Globally Harmonised System of Classification and Labelling of Chemicals

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

Flam. Sol. 1: Flammable solids – Category 1

Flam. Sol. 2: Flammable solids – Category 2

Water-react. 1: Substances and mixtures which in contact with water emit flammable gases – Category 1

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

Resp. Sens. 1: Respiratory sensitisation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

Muta. 2: Germ cell mutagenicity – Category 2

Carc. 1A: Carcinogenicity – Category 1A

Carc. 2: Carcinogenicity – Category 2



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Repr. 1B: Reproductive toxicity – Category 1B

STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1

Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4