

MSDS REPORT

Applicant : NINGBO SOLAR TECH IMP. & EXP. CO., LTD
239 Wangshan Road, Jiangbei District, Ningbo City,
Zhejiang Province, China

Manufacturer : NINGBO SOLAR TECH IMP. & EXP. CO., LTD
239 Wangshan Road, Jiangbei District, Ningbo City,
Zhejiang Province, China

Product Description : Ni-CD Battery

Product Code : AA, AAA, 1/3AAA, 2/3AAA

Trade Mark : N/A



This report is limited to the above applicant company and the product model only.





MSDS REPORT

Product Name: Ni-CD Battery

Establishment / Revision: January 05, 2022

MATERIAL SAFETY DATA SHEET

(according to ISO 11014: 2009)

SECTION 1: Identification of Product and Supplier

1.1. Identification of the substance or preparation

Product Name: Ni-CD Battery

Sample Model No.: AA

Customer declares the same formula Model No. AA: AAA, 2/3AAA, 1/3AAA

Battery Capacity includes (AA: 100/ 150/ 200/ 300/ 400/ 600mAh;

AAA: 100/ 200/ 300/ 600mAh;

2/3 AAA: 100/ 200mAh; 1/3 AAA: 100mAh;)

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

Application of the substance / the preparation: Used in electrical appliances such as solar lights.

1.3. Company / undertaking identification

Manufacturer: NINGBO SOLAR TECH IMP. & EXP. CO., LTD

Address: 239 Wangshan Road, Jiangbei District, Ningbo City, Zhejiang Province, China

Tel: +86-574-2887 0773

Fax: +86--

E-mail: --

1.4. Emergency telephone

Emergency telephone number: [Weekday] +86-574-2887 0773

[Night and holiday] +86-156 0663 6082

SECTION 2: Hazards Identification

Emergency overview: cylindrical solid, odorless; harmful if swallowed. According to 29 CFR 1910.1200, this chemical is not considered hazardous.

There is no danger in normal use. It may burn or explode after being ruptured by external force or high temperature and fire.

This product is a sealed battery. The information shown below is the risk of battery rupture.

Nowd Testing Services Co., Ltd.

<http://www.nowd.com.cn>



Hotline: +86-755-27830065

MSDS REPORT

Product Name: Ni-CD Battery

Establishment / Revision: January 05, 2022

2.1 Classification of the substance or mixture

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

Acute toxicity, Inhalation (Category 2), H330
Skin corrosion/irritation (category 2), H315
Respiratory allergy (category 1), H334
Skin allergies (category 1), H317
Germ cell mutagenicity (category 2), H341
Carcinogenicity (Category 1A), H350
Reproductive toxicity (category 1B), H360
Specific target organ toxicity (repeated exposure), inhalation (category 1), lung, H372
Acute (short-term) aquatic hazard (category 1), H400
Long-term aquatic hazard (category 1), H410

Classification according to EU Directives 67/548/EEC or 1999/45/EC

Xn Harmful R20/22

2.2 Label elements

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

Pictogram



Signal word

Danger

Hazard statement(s)

H330 Fatal if inhaled.
H314 Causes severe skin burns and eye damage.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341 Suspected of causing genetic defects.
H350i May cause cancer by inhalation.
H360 May damage fertility or 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: none

P201 Obtain special instructions before use.
P260 Do not breathe dust/ fume/ gas/ mist/ vapor/ spray.





MSDS REPORT

Product Name: Ni-CD Battery

Establishment / Revision: January 05, 2022

P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Can only be used outdoors or in a well-ventilated place.
P272	Contaminated work clothes must not be taken out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	[In case of insufficient ventilation] Wear respiratory protection.
P303 + P361 + P353	If skin (or hair) is contaminated: Take off all contaminated clothing immediately. Wash skin/shower with water.
P304 + P340 + P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor. IF exposed or concerned: Get medical advice/ attention.
P305 + P351 + P338 + P310	If this product spills into the eyes: rinse carefully with water for several minutes. If you wear contact lenses and can be easily removed, take out the contact lenses. Continue to rinse. Call the emergency center/doctor immediately.
P308 + P313	If exposed or have concerns: Get medical advice/attention.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	The storage place must be locked.
P406	Be stored in anti-corrosion/ corrosion-resistant lining containers.
P501	Send the contents/containers to an approved waste treatment plant for disposal.

Supplemental Hazard Statements: none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition / Information on Ingredients

3.1 Information about the chemical nature of product :



**MSDS REPORT**

Product Name: Ni-CD Battery

Establishment / Revision: January 05, 2022

Common chemical name / General name	CAS No.	EINECS No.	Concentration / Concentration range	Classification and hazard labeling
Nickel hydroxide (Ni(OH) ₂)	12054-48-7	235-008-5	16.7%	Health: 2 Flammability: 0 Reactivity: 1
Cd(OH) ₂	21041-95-2	244-168-5	26.4%	Health: 3 Flammability: 0 Reactivity: 1
Iron oxide (Fe ₂ O ₃)	1345-25-1	215-721-8	25.2%	Health: 1 Flammability: 0 Reactivity: 1
Water (H ₂ O)	7732-18-5	231-791-2	18.3%	Health: 0 Flammability: 0 Reactivity: 0
Potassium hydroxide (KOH)	1310-58-3	215-181-3	8%	Health: 3 Flammability: 0 Reactivity: 2
Sodium hydroxide (NaOH)	1310-58-3	215-181-3	2.8 %	Health: 3 Flammability: 0 Reactivity: 2
Graphite (C)	7782-42-5	231-955-3	2.6%	Health: 3 Flammability: 0 Reactivity: 0

SECTION 4: Emergency measures**4.1 Description of first aid measures**

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance.

Eye contact : Rinse thoroughly with plenty of water for at least 15 minutes.
Consult a doctor.

Skin contact : Wash off with soap and plenty of water.
Consult a physician.

Inhalation : If breathed in, move person into fresh air.





MSDS REPORT

Product Name: Ni-CD Battery

Establishment / Revision: January 05, 2022

If not breathing, give artificial respiration.

Consult a physician.

Ingestion : Never give anything by mouth to an unconscious person.

Rinse mouth with water.

Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Fire Fighting Measures

5.1 Extinguishing Media:

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture :

Nickel oxide, iron oxide, Cadmium oxide, other metal oxides, carbon oxides

5.3 Advice for firefighters:

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information :

No data available

SECTION 6: Leak Emergency Treatment

6.1 Personal precautions, protective equipment and emergency procedures:

Use personal protective equipment.

Avoid dust generation.

Avoid breathing dust, vapor, mist or gas.

Ensure adequate ventilation.

Evacuate people to a safe area.

Nowd Testing Services Co., Ltd.

<http://www.nowd.com.cn>



Hotline: +86-755-27830065



MSDS REPORT

Product Name: Ni-CD Battery

Establishment / Revision: January 05, 2022

For personal protection see section 8.

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 materials for containment and cleaning up

- Pick up and arrange disposal without creating dust.
- Sweep up and shovel.
- Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and Storage

7.1 Precautions for safe handling:

- Avoid touching sharp metal edges.
- Avoid contact with skin and eyes.
- Avoid formation of dust and aerosols.
- Avoid breathing dust, vapor or mist.
- Provide appropriate exhaust ventilation at places where dust is formed.
- Need to obtain special guidance before use.
- For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities:

- Store in cool place.
- Keep container tightly closed in a dry and well-ventilated place.
- Storage class (TRGS 510): Non Combustible Solids

SECTION 8: Access Controls / Personal Protection

8.1 Control parameters

Components with workplace control parameters



**MSDS REPORT**

Product Name: Ni-CD Battery

Establishment / Revision: January 05, 2022

Component	CAS No.	Value	Control parameters	Basis
Potassium hydroxide	1310-58-3	TWA	1 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
Nickel hydroxide	12054-48-7	PC-TWA	1 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
Sodium hydroxide	1310-73-2	PC-TWA	2 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
Cadmium oxide	1306-19-0	TWA	0.01 mg/m ³	Occupational exposure limits for hazardous agents in the workplace - Chemical hazardous agents.

8.2 Exposure controls**Appropriate engineering controls**

Handle in accordance with good industrial hygiene and safety practice.

Wash hands before breaks and at the end of workday.

Personal Protective Equipment:**Eye/face protection**

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection :

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle r (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure :

Prevent further leakage or spillage if safe to do so.

Do not let product enter drains.

Nowd Testing Services Co., Ltd.

<http://www.nowd.com.cn>

Hotline: +86-755-27830065

**MSDS REPORT**

Product Name: Ni-CD Battery

Establishment / Revision: January 05, 2022

Discharge into the environment must be avoided.

SECTION 9: Physical and Chemical Properties**9.1 Information on basic physical and chemical properties**

- | | |
|---|--|
| a) Appearance: | Solid, Cylindrical shape |
| b) Color | Covered by color sheet, Silvery (when without tube or sheet) |
| c) Physical state: | Solid |
| d) Smell: | Odorless |
| e) pH (1% soln/water): | Not applicable |
| f) Melting point/freezing point : | No data available |
| g) Initial boiling point and boiling range: | No data available |
| h) Flash point: | No data available |
| i) Evaporation rate: | No data available |
| j) Flammability (Liquid, gas): | No data available |
| k) Upper/lower flammability or explosive limits: | Upper explosion limit: No data available
Lower explosion limit: No data available |
| l) Vapor Pressure: | No data available |
| m) Vapor Density: | No data available |
| n) Relative density: | 1.6-3.2 g/cm ³ at 20°C |
| o) Water solubility: | Insoluble |
| p) Partition coefficient: n-octanol / water | No data available |
| q) Ignition Temperature: | No data available |
| r) Decomposition temperature: | No data available |
| s) Viscosity: | No data available |
| t) Explosive properties: | No data available |
| u) Oxidizing properties : | No data available |

9.2 Other safety information



MSDS REPORT

Product Name: Ni-CD Battery

Establishment / Revision: January 05, 2022

Voltage 1.2 Volts

SECTION 10: Stability and Reactivity

10.1 Reactivity: No data available

10.2 Chemical Stability: Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions :

No data available

10.4 Conditions to Avoid: Heat, flames, crush, disassemble, short circuit or recharge.

10.5 Incompatible materials :

Conductive materials, water, seawater, strong oxidizers and strong acids.

10.6 Hazardous decomposition products :

Hazardous decomposition products formed under fire conditions. - Nickel oxide, iron oxide, Cadmium oxide, other metal oxides, carbon oxides

Other decomposition products - No data available

SECTION 11: Toxicological Information

11.1 Information on toxicological effects

The chemicals in this product are contained in sealed containers and will not be exposed during normal operation and use. Dealing with leaked batteries will not have long-term effects.

The following information is based on the assessment of product rupture and leakage.

Acute Toxicity:

LD50 Oral - Mouse - > 500 mg/kg

Skin corromgFn/irritation

Skin - Rabbit

Result: Irritating to the skin. - 4 h

(OECD Test Guideline 404)

Serious eye damage/eye irritation:

Eyes - Rabbit

Result: Causes serious eye damage.

Nowd Testing Services Co., Ltd.

<http://www.nowd.com.cn>



Hotline: +86-755-27830065



MSDS REPORT

Product Name: Ni-CD Battery

Establishment / Revision: January 05, 2022

(OECD Test Guideline 405)

Respiratory or skin sensitisation :

May cause allergic skin reaction.

Germ cell mutagenicity

Suspected of causing genetic defects.

In vitro mammalian cell gene mutation test
mouse lymphoma cells

Result: positive

In vitro mammalian cell gene mutation test
Chinese hamster ovary cells

Result: positive

Carcinogenicity:

IARC: 1 - Group 1: Carcinogenic to humans (Nickel dihydroxide).

Reproductive toxicity: May damage the unborn child.

Specific target organ toxicity - single exposure:

No data available.

Specific target organ toxicity - repeated exposure:

Acute oral toxicity - Swallowing can cause severe burns to the mouth and throat, and risk of perforation of the esophagus and stomach.

Acute inhalation toxicity - mucosal burns, cough, shortness of breath, possible damage:, damage to the respiratory tract

Aspiration hazard: No data available

Additional Information

RTECS: No data available

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological Information





MSDS REPORT

Product Name: Ni-CD Battery

Establishment / Revision: January 05, 2022

12.1 Toxicity: No data available

12.2 Persistence and degradability:

Since a battery cell and the internal materials remain in the environment, do not bury or throw out into the environment.

12.3 Bioaccumulative potential: No data available

12.4 Mobility in soil: No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No data available

SECTION 13: Waste handling

13.1 Waste treatment methods

Product

Recover or recycle if possible. To be disposed of as hazardous waste.
Disposal should be in accordance with local, state or national legislation.
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

SECTION 14: Transport Information

In general, all batteries in all forms of transportation (ground, air, or ocean) must be packaged in a safe and responsible manner.

Regulatory concerns from all agencies for safe packaging require that batteries be packaged in a manner that prevents short circuits and be contained in “strong outer packaging” that prevents spillage of contents.

All original packaging for Dry batteries has been designed to be compliant with these regulatory concerns.

Dry batteries (sometimes referred to as “Dry cell” batteries) are not listed as dangerous goods under the ADR European Agreement Concerning the International Carriage of Dangerous Goods by Road, the IMDG



**MSDS REPORT**

Product Name: Ni-CD Battery

Establishment / Revision: January 05, 2022

International Maritime Dangerous Goods Code, UN Dangerous Good Regulations, IATA Dangerous Special Provision A123: IATA DGR Edition 2020-61th Edition Goods Regulations, ICAO Technical Instructions and the U.S. hazardous materials regulations (49CRF).

Regulatory Body	Special Provisions
TDG	Special Provision: 97
ADR	295 - 304, 598
IMDG	Special Provision: SP117 & SP963
IATA	Special Provision: A123
US DOT	49 CFR 172.102 Provision 130
UN	UN 3496 - Special Provision SP 963
ICAO	UN 3496 - Special Provision SP 963

All Dry batteries are packed in such a way to prevent short circuits or generation dangerous quantities of heat and meet the special provisions listed above.

In addition, the IATA Dangerous Goods Regulations and ICAO Technical Instructions require the words “not restricted” and the Special Provision number A123 be provided on the air waybill, when an air waybill is issued.

14.1 UN number :

ADR/RID: --

IMDG: UN3496

IATA: --

14.2 UN proper shipping name:

ADR/ RID: Not restricted

IMDG/ IMO: Batteries, Nickel-metal hydride.

IATA/ ICA: Not restricted

14.3 Transport hazard class(es) :

Label: --

ADR/RID: --

IMDG: --

IATA: --

14.4 Packaging group :

ADR/RID: --

IMDG: --

IATA: --

14.5 Environmental hazards :

ADR/RID: no

IMDG: no

IATA: no





MSDS REPORT

Product Name: Ni-CD Battery

Establishment / Revision: January 05, 2022

14.6 Special precautions:

SECTION 15: Regulation Information

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

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

National regulations

Information about limitation of use:

Employment restrictions concerning young persons must be observed.

For use only by technically qualified individuals.

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

Other regulations, limitations and prohibitive regulations

《Dangerous Goods Regulation》

《Recommendations on the Transport of Dangerous Goods Model Regulation》

《International Maritime Dangerous Goods》

《Classification and code of dangerous goods》

OSHA hazard communication standard (29 CFR 1910.1200)

US Department of Transportation DOT (49 CFR 100-185)

The International Air Transport Association (IATA) Dangerous Goods Regulations (61th Edition (Year 2020))

EU Directive 2006/66/EC

Toxic Substances Control Act (TSCA) Status

SARA Title III

RCRA

In accordance with all Federal, State and Local laws.

SECTION 16: Other Information

The information contained in this Safety data sheet is based on the present state of knowledge and current legislation.

Nowd Testing Services Co., Ltd.

<http://www.nowd.com.cn>



Hotline: +86-755-27830065

MSDS REPORT

Product Name: Ni-CD Battery

Establishment / Revision: January 05, 2022

Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use.

This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

This safety data sheet provides guidance on health, safety and environmental aspects of the product and should not be construed as any guarantee of technical performance or suitability for particular applications.

MSDS Creation Date: January 05, 2022

Product photos: