Report No.: MND241445QD_US(En)

Nomination No.: TJP24-007447-01

Design Report of Safety Data Sheet

Product Name：NI-CD RECHARGEABLE BATTERY

Warranty of Design：USA OSHA HCS-2024

Application Company Name：XINXIANG BOYAN POWER SUPPLY CO.,LTD.

Application Company Address：Room 1308, Building A1, Fengsheng Heyuan, Huixian, Xinxiang City, Henan Province, China

Contact Information：15090409652

24 Hour Emergency Call：**18637355269**

Inspection Date：2024/12/30

SGS-CSTC Standards Technical Services(Qingdao) Co.,Ltd

Authorised Signatory

2025-01-02

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Safety Data Sheet

NI-CD RECHARGEABLE BATTERY

Version：V2.0.0.1
Report No.：MND241445QD_US(En)
Nomination No.：TJP24-007447-01
Creation Date：2024/12/30
Revision Date：2024/12/30

***Prepared according to American OSHA HCS-2024 (29 CFR 1910.1200)**

1 Identification

Product identifier

Product Name	NI-CD RECHARGEABLE BATTERY
Product Model	See Appendix 1
CAS No.	Not applicable
EC No.	Not applicable
Molecular Formula	Not applicable

Recommended use of the product and restrictions on use

Relevant identified uses	Please consult manufacturer.
Uses advised against	Please consult manufacturer.

Details of the supplier of the Safety Data Sheet

Name of the company	XINXIANG BOYAN POWER SUPPLY CO.,LTD.
Address of the company	Room 1308, Building A1, Fengsheng Heyuan, Huixian, Xinxiang City, Henan Province, China
Post code	——
Telephone number	15090409652
Fax number	0373-6816991
E-mail address	15783825@QQ.COM

Emergency phone number

Emergency phone number	18637355269

2 Hazard(s) identification

Hazard classification according to 29 CFR 1910.1200

The product meets the definition of "article". In the Globally Harmonized Chemical Classification and Labeling System (GHS), the "articles" defined by the US Occupational Safety and Health Administration "Hazard Communication Standard" (29 CFR 1910.1200) or similar definitions do not fall within the scope of this system. [Rev.10 (2023) Part 1.3.2.1.1].According to Regulation OSHA HCS-2012 and its amendments. Not classified as a dangerous substance.

Label elements

Hazard pictograms	Not applicable
Signal word	Not applicable

Hazard statements

Hazard statements	Not applicable

Precautionary statements

◆ Prevention

Prevention	Not applicable

◆ Response

Response	Not applicable

◆ Storage

Storage	Not applicable

◆ Disposal

Disposal	Not applicable

Other hazards

	Not applicable.

Hazard description

◆ Physical and chemical hazards

	No information available

◆ Health hazards

Inhaled	Inhalation of the product may produce adverse health effects or irritation of the respiratory tract following discomfort.
Ingestion	Accidental ingestion of the product may be harmful to the health of the individual.
Skin Contact	Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.
Eye	This product may cause temporary discomfort following direct contact with the eye.

◆ Environmental hazards

	Please refer to 12th chapter of SDS.

3 Composition/information on ingredients

Substance/mixture

	Mixture

Component	CAS No.	EC No.	Concentration (wt, %)
Cd(OH)2	21041-95-2	244-168-5	26.4
FeO	1345-25-1	215-721-8	25.2
Water	7732-18-5	231-791-2	18.3
NiOH	12054-48-7	235-008-5	16.7
KOH	1310-58-3	215-181-3	8.0
NaOH	1310-73-2	215-185-5	2.8
Graphite powder	7782-42-5	231-955-3	2.6

4 First-aid measures

Description of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet (SDS) to the

	doctor in attendance.
Eye contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician if feel uncomfortable.
Skin contact	Take off contaminated clothing and shoes immediately. Wash off with plenty of soap and water for at least 15 minutes and consult a physician if feel uncomfortable.
Ingestion	Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.
Inhalation	Move victim into fresh air. If breathing is difficult, give oxygen. Do not use mouth to mouth resuscitation if victim ingested or inhaled the substance. If not breathing, give artificial respiration and consult a physician immediately.
Protecting of first-aiders	Ensure that medical personnel are aware of the substance involved. Take precautions to protect themselves and prevent spread of contamination.

Most important symptoms/effects, acute and delayed

1	Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure.

Indication of any immediate medical attention and special treatment needed

1	Treat symptomatically.
2	Symptoms may be delayed.

5 Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Please use battery fire extinguisher.
Unsuitable extinguishing media	Use dry powder fire extinguishers, carbon dioxide fire extinguishers, and water-based fire extinguishers. When making a choice, it should be judged based on specific circumstances.

Specific hazards arising from the substance or mixture

1	Fire may produce irritating, poisonous or corrosive gases.
2	Development of hazardous combustion gases or vapor possible in the event of fire.
3	May expansion or decompose explosively when heated or involved in fire.

Special protective equipment and precautions for fire-fighters

1	As in any fire, wear self-contained breathing apparatus（MSHA/NIOSH approved or equivalent) and full protective gear.
2	Fight fire from a safe distance, with adequate cover.
3	Prevent fire extinguishing water from contaminating surface water or the ground water system.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

1	Fully encapsulating, vapor protective clothing should be worn for spills and leaks with no fire.
2	Do not touch or walk through spilled material.
3	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
4	Ensure adequate ventilation. Remove all sources of ignition. Take precautionary measures against static discharges.
5	Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6	Use personal protective equipment,do not breathe dust/fume.

Environmental precautions

1	Prevent further leakage or spillage if safe to do so.
2	Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

1	Isolation of contaminated areas and restrictions on access.
2	It is recommended that emergency personnel wear dust masks and wear anti-corrosion clothing.
3	Do not touch broken containers and spills before putting on appropriate protective clothing.
4	Cover the spill with a plastic sheet to reduce scattering.
5	Cut off the source of the leak as much as possible.
6	Keep leaks in a ventilated place.
7	It is recommended that emergency personnel wear dust masks.
8	Collect the spill with a clean shovel and place it in a clean, dry, loosely closed container and move the container away from the leak.
9	Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

7 Handling and storage

Precautions for safe handling

1	Handling is performed in a well ventilated place.
2	Wear suitable protective equipment.
3	Avoid contact with skin and eyes.
4	Keep away from heat/sparks/open flames/ hot surfaces.

Conditions for safe storage, including any incompatibilities

1	Keep containers tightly closed.
2	Keep containers in a dry, cool and well-ventilated place.
3	Keep away from heat/sparks/open flames/hot surfaces.
4	Store away from incompatible materials and foodstuff containers.

8 Exposure controls/personal protection

Control parameters

Component	Country/Region	Limit value - Eight hours		Limit value - Short term	
		ppm	mg/m³	ppm	mg/m³
FeO	Australia	-	5	-	-
	Canada - Ontario	-	5	-	-
	Canada - Québec	-	5	-	-
	New Zealand	-	5	-	-
	South Korea	-	5	-	-
	United Kingdom	-	5	-	10
NiOH	France	-	1	-	-

	Finland	-	0.05	-	-
	Spain	-	0.1 (as Ni)	-	-
KOH	Australia	-	-	-	2
	Canada - Ontario	-	-	-	2
	Canada - Québec	-	-	-	2
	France	-	-	-	2
	New Zealand	-	-	-	2
	South Korea	-	-	-	2
NaOH	Australia	-	-	-	2
	Canada - Ontario	-	-	-	2
	Canada - Québec	-	-	-	2
	France	-	2	-	-
	New Zealand	-	-	-	2
	South Korea	-	-	-	2
Graphite powder	Australia	-	3	-	-
	Canada - Ontario	-	2	-	-
	Canada - Québec	-	2	-	-
	France	-	2(respirable aerosol)	-	-
	New Zealand	-	3	-	-
	South Korea	-	2	-	-

Engineering controls

1	Ensure adequate ventilation, especially in confined areas.
2	Ensure that eyewash stations and safety showers are close to the workstation location.
3	Use explosion-proof electrical/ventilating/lighting/equipment.
4	Set up emergency exit and necessary risk-elimination area.

Personal protection equipment

General requirement	No special requirements, please see the description below.
Eye protection	In general situation, eye protection is not needed. In the production process, when contacting with vapour or dust, tightly fitting safety goggles.
Hand protection	In general situation, hand protection is not needed.
Respiratory protection	In general situation, respiratory protection is not needed. If exposure limits are exceeded or if irritation or other symptoms are experienced, wear dust proof mask or gas defence mask.
Skin and body protection	In general situation, skin and body protection are not needed.

9 Physical and chemical properties and safety characteristics

Physical and chemical properties

Appearance (physical state, color, etc.)	Solidity

Odor	No information available
Odor threshold	No information available
pH	No information available
Melting point/freezing point(°C)	No information available
Initial boiling point and boiling range(°C)	No information available
Flash point(Closed cup,°C)	Not applicable
Evaporation rate	Not applicable
Flammability	No information available
Upper/lower explosive limits[%(v/v)]	Upper limit：No information available；Lower limit：No information available
Vapor pressure(kPa)	Not applicable
Vapor density(Air = 1)	Not applicable
Relative density(Water=1)	No information available
Solubility(mg/L)	No information available
n-octanol/water partition coefficient	No information available
Auto-ignition temperature(°C)	No information available
Decomposition temperature(°C)	No information available
Kinematic viscosity(mm^2/s)	Not applicable

10 Stability and reactivity

Stability and reactivity

Reactivity	Contact with incompatible substances can cause decomposition or other chemical reactions.
Chemical stability	Stable under proper operation and storage conditions.
Possibility of hazardous reactions	The substance contains a certain amount of water, and may release hydrogen gas in contact with active metals.
Conditions to avoid	Incompatible materials, heat, flame and spark.
Incompatible materials	Active metal, alcohols, aldehydes, carbon disulfide, carbon, sulfur, phosphorus, boron, reducing agents, metallic acetylenes and metallic carbonates. Alkali, sodium, calcium, and other active metal, halogen, metal oxide, nonmetal oxide, acyl halide and metal phosphide. Acids, phenols, alcohols and nitro substituted hydrocarbon. Metal acetylide, halogen, interhalogen, halogen oxides, nitric acid, nitrous oxide, nitrates, nitrites, halogen oxyacid salts, chromates, permanganates, inorganic peroxides, metal oxides and peroxyformic acid.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11 Toxicological information

Acute toxicity

Component	LD_{50}(oral)	LD_{50}(dermal)	LC_{50}(inhalation,4h)
KOH	273mg/kg(Rat)	No information available	No information available
NiOH	1515mg/kg(Rat)	> 2000mg/kg(Rat)	1.2mg/L(Rat)

Carcinogenicity

Component	List of carcinogens by the IARC Monographs	Report on Carcinogens by NTP	OSHA Carcinogen List
Cd(OH)2	Category 1	Category K	Not Listed
FeO	Not Listed	Not Listed	Not Listed
Water	Not Listed	Not Listed	Not Listed
NiOH	Category 1	Category K	Not Listed
KOH	Not Listed	Not Listed	Not Listed
NaOH	Not Listed	Not Listed	Not Listed
Graphite powder	Not Listed	Not Listed	Not Listed

Others

NI-CD RECHARGEABLE BATTERY	
Skin corrosion/irritation	Based on available data, the classification criteria are not met
Serious eye damage/irritation	Based on available data, the classification criteria are not met
Skin sensitization	Based on available data, the classification criteria are not met
Respiratory sensitization	Based on available data, the classification criteria are not met
Reproductive toxicity	Based on available data, the classification criteria are not met
STOT-single exposure	Based on available data, the classification criteria are not met
STOT-repeated exposure	Based on available data, the classification criteria are not met
Aspiration hazard	Based on available data, the classification criteria are not met
Germ cell mutagenicity	Based on available data, the classification criteria are not met

12 Ecological information

Acute aquatic toxicity

Component	Fish	Crustaceans	Algae
NiOH	LC_{50}：77.13mg/L (96h)(Fish)	No information available	No information available
Graphite powder	LC_{50}: 100mg/L (96h)(Fish)	No information available	No information available
NaOH	LC_{50}: 196mg/L (96h)(Fish)	EC_{50}：40.4mg/L (48h)(Crustaceans)	No information available

Chronic aquatic toxicity

Chronic aquatic toxicity	No information available

Persistence and degradability

Component	Persistence (water/soil)	Persistence (air)
Graphite powder	Low	Low

Bioaccumulative potential

Component	Bioaccumulative potential	Comments

Graphite powder	Low	Log Kow=0.5294

Mobility in soil

Component	Mobility in soil	Soil Organic Carbon-Water Partitioning Coefficient (Koc)
Graphite powder	Low	23.74

Results of PBT and vPvB assessment

Component	Results of PBT and vPvB assessment [according to (EC) No 1907/2006]
Cd(OH)2	Not applicable
FeO	Not applicable
Water	Insufficient information, temporarily unable to evaluate
NiOH	Not applicable
KOH	Insufficient information, temporarily unable to evaluate
NaOH	Not applicable
Graphite powder	Not applicable

13 Disposal considerations

Disposal considerations

Waste chemicals	Before disposal should refer to the relevant national and local laws and regulation. Recommend the use of incineration disposal.
Contaminated packaging	Containers may still present chemical hazard when empty. Keep away from hot and ignition source of fire. Return to supplier for recycling if possible.
Disposal recommendations	Refer to section waste chemicals and contaminated packaging.

14 Transport information

Remark： According to the International Maritime Organization's International Maritime Dangerous Goods Code, goods that meet the requirements of Special Regulation 238，not regulated for transport of dangerous goods.
According to the International Air Transport Association's Dangerous Goods Regulation, goods that meet the requirements of Special Regulation A67 A164, not regulated for transport of dangerous goods.
According to the United Nations Economic Commission for Europe Agreement concerning the International Carriage of Dangerous Goods by Road, goods that meet the requirements of Special Regulation 238，not regulated for transport of dangerous goods.

Label and Mark

Transporting Label	

IMDG-CODE

UN number	2800
UN proper shipping name	BATTERIES, WET, NON-SPILLABLE electric storage
Transport hazard class	8
Transport subsidiary hazard	None

class	
Packing group	The packagings must conform to package instructions of UN number
Marine pollutant（Yes or no）	No

IATA-DGR

UN number	2800
UN proper shipping name	BATTERIES, WET, NONSPILLABLE, electric storage
Transport hazard class	8
Transport subsidiary hazard class	None
Packing group	The packagings must conform to package instructions of UN number

UN-ADR

UN number	2800
UN proper shipping name	BATTERIES, WET, NON-SPILLABLE, electric storage
Transport hazard class	8
Transport subsidiary hazard class	None
Packing group	The packagings must conform to package instructions of UN number

Others

Precautions for transport	Transport vehicles should be equipped with the appropriate variety and quantity of fire equipment and emergency equipment leakage during transport. Before transport, should be preceded by checking whether container integrity, sealing. The transport unit must be placarded and marked in accordance with relevant transporting requirements.

15 Regulatory information

International chemical inventory

Component	EC inventory	TSCA	DSL	IECSC	NZIoC	PICCS	KECI	AIIC	ENCS
Cd(OH)2	√	√	×	√	√	×	√	√	√
FeO	√	√	√	√	√	×	√	√	√
Water	√	√	√	√	√	√	√	√	√
NiOH	√	√	√	√	√	√	√	√	√
KOH	√	√	√	√	√	√	√	√	√
NaOH	√	√	√	√	√	√	√	√	√
Graphite powder	√	√	√	√	√	√	√	√	√

[EC inventory] European Inventory of Existing Commercial Chemical Substances
[TSCA] United States Toxic Substances Control Act Inventory
[DSL] Canadian Domestic Substances List
[IECSC] China Inventory of Existing Chemical Substances
[NZIoC] New Zealand Inventory of Chemicals
[PICCS] Philippines Inventory of Chemicals and Chemical Substances
[KECI] Korea Existing Chemicals Inventory
[AIIC] Australian. Inventory of Industrial Chemical (AIIC)

[ENCS] Japan Inventory of Existing & New Chemical Substances

US chemical inventory

Component	A	B	C	D	E	F	G	H
Cd(OH)2	×	×	×	×	√	×	×	×
FeO	×	×	×	×	×	×	×	×
Water	×	×	×	×	×	×	×	×
NiOH	×	×	√	√	√	√	√	√
KOH	×	×	√	√	√	√	√	×
NaOH	×	×	√	√	√	√	√	×
Graphite powder	×	×	×	√	√	√	×	×

[A] US Clean Air Act (CAA)- Section 112, Hazardous Air Pollutants
[B] US SARA 302- Extremely Hazardous Substance List
[C] US CERCLA- Hazardous Substances List
[D] US Massachusetts Right-to-Know Substance List
[E] US New Jersey Right to Know Hazardous Substance List
[F] US Pennsylvania Right to Know Hazardous Substance List
[G] US New York City Right-to-Know Hazardous Substance List
[H] US California Proposition 65 List

Note:
"√" Indicates that the substance included in the regulations.
"×" No data or not included in the regulations.

16 Other information

Information on revision

Creation Date	2024/12/30
Revision Date	2024/12/30
Reason for revision	-

Reference

[1] IPCS: The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home。
[2] IARC, website: http://www.iarc.fr/。
[3] OECD: The Global Portal to Information on Chemical Substances, website: https://www.echemportal.org/echemportal/。
[4] CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple。
[5] NLM: ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp。
[6] EPA: Integrated Risk Information System, website: http://cfpub.epa.gov/iris/。
[7] U.S. Department of Transportation: ERG, website: http://www.phmsa.dot.gov/hazmat/library/erg。
[8] Germany GESTIS-database on hazard substance, website: http://gestis-en.itrust.de/。

Abbreviations and acronyms

CAS	Chemical Abstracts Service	UN	The United Nations
PC-STEL	Short term exposure limit	OECD	Organization for Economic Co-operation and Development
PC-TWA	Time Weighted Average	IMDG-CODE	International Maritime Dangerous Goods CODE
MAC	Maximum Allowable Concentration	IARC	International Agency for Research on Cancer
DNEL	Derived No Effect Level	ICAO	International Civil Aviation Organization
PNEC	Predicted No Effect Concentration	IATA	International Air Transportation Association
NOEC	No Observed Effect Concentration	ACGIH	American Conference of Governmental Industrial Hygienists
LC_{50}	Lethal Concentration 50%	NFPA	National Fire Protection Association

LD_{50}	Lethal Dose 50%	NTP	National Toxicology Program
EC_{50}	Effective Concentration 50%	PBT	Persistent, Bioaccumulative, Toxic
EC_X	Effective Concentration X%	vPvB	very Persistent, very Bioaccumulative
P_{OW}	Partition coefficient Octanol: Water	CMR	Carcinogens, mutagens or substances toxic to reproduction
BCF	Bioconcentration factor	RPE	Respiratory Protective Equipment
ED	Endocrine disruptor	HCS	Hazard Communication Standard

Disclaimer

This Safety Data Sheet (SDS) was prepared according to OSHA HCS-2024. The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

Appendix 1:

NI-CD: AA100mAh AA150mAh AA200mAh AA250mAh AA300mAh AA350mAh AA400mAh AA450mAh AA500mAh AA600mAh AA700mAh AA800mAh AA900mAh AA1000mAh AA1100mAh AA1200mAh AA1300mAh AA1400mAh AA1500mAh AA1600mAh AA1700mAh AA1800mAh AA1900mAh AA2000mAh AA2100mAh AA2200mAh AA2300mAh AA2400mAh AA2500mAh AA2600mAh

NI-CD: AAA100mAh AAA150mAh AAA200mAh AAA250mAh AAA300mAh AAA350mAh AAA400mAh AAA450mAh AAA500mAh AAA600mAh AAA700mAh AAA800mAh AAA900mAh AAA1000mAh

NI-CD: 1/3AAA80mAh 1/3AAA100mAh 1/3AAA120mAh 1/3AAA150mAh 1/3AAA180mAh 1/3AAA200mAh

NI-CD: 2/3AA100mAh 2/3AA150mAh 2/3AA200mAh 2/3AA250mAh 2/3AA300mAh 2/3AA350mAh 2/3AA400mAh 2/3AA450mAh 2/3AA500mAh 2/3AA550mAh 2/3AA600mAh

NI-CD: 2/3AAA100mAh 2/3AAA150mAh 2/3AAA200mAh 2/3AAA250mAh 2/3AAA300mAh 2/3AAA350mAH 2/3AAA400mAH 2/3AAA450mAh 2/3AAA500mAh 2/3AAA550mAh 2/3AAA600mAh

NI-CD: SC600mAh SC700mAh SC800mAh SC900mAh SC1000mAh SC1100mAh SC1200mAh SC1300mAh SC1400mAh SC1500mAh SC1600mAh SC1700mAh SC1800mAh SC1900mAh SC2000mAh SC2100mAh SC2200mAh SC2300mAh SC2400mAH SC2500mAh SC2600mAh SC2700mAh SC2800mAh SC2900mAh SC3000mAh

NI-CD: C1500mAh C1800mAh C2000mAh C2500mAh C3000mAh C3500mAh C4000mAh

NI-CD: D3000mAh D3500mAh D4000mAh D4500mAh D5000mAh D6000mAh D7000mAh D8000mAh