

# SAFETY DATA SHEET

HCS-2012 APPENDIX D TO §1910.1200

Version 1

Product Name Nickel Cadmium Battery

Issue Date 21-Jan-2015

Revision date 21-Jan-2015

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### Product identifier

Product Name Nickel Cadmium Battery  
Chemical Name Nickel Cadmium Battery

### Other means of identification

### Recommended use of the chemical and restrictions on use

Recommended Use Used in electric tools  
Uses advised against No information available

### Details of the supplier of the safety data sheet

Supplier Jiangsu Highstar Battery Manufacturing Co.,Ltd.  
Address No.306 Heping Road(s), Qidong City, Jiangsu, China  
Postal Code 226200  
Phone 0086-513-80795666  
FAX 0086-513-83312306  
E-mail chenj@highstar.net.cn

### Emergency telephone number

0086-513-80795666

## 2. HAZARDS IDENTIFICATION

### GHS Classification

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

### Label elements

Symbols/Pictograms None  
Signal word None  
Hazard Statements None  
Precautionary Statements  
Prevention None  
Response None  
Storage None  
Disposal None

### Hazards not otherwise classified (HNOC)

No information available

### Unknown acute toxicity

.?% of the mixture consists of ingredient(s) of unknown toxicity

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### Chemical nature

Mixture

Chemical Name	CAS No	Weight-%
Nickel	7440-02-0	10 - 25
Cadmium and compounds (as Cd)	7440-43-9	10 - 25
Cadmium hydroxide (Cd(OH) <sub>2</sub> )	21041-95-2	12 - 23
Nickel hydroxide	12054-48-7	6 - 14

Iron	7439-89-6	10 - 13
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## 4. FIRST AID MEASURES

### Description of first aid measures

General advice	Remove contaminated clothing and shoes. If symptoms persist, call a physician.
Inhalation	Not an expected route of exposure. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Skin Contact	Wash hands thoroughly after handling. .
Eye contact	Not an expected route of exposure. .
Ingestion	Rinse mouth Get medical attention Never give anything by mouth to an unconscious person

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

No information available.

### Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## 5. FIRE-FIGHTING MEASURES

### Extinguishing media

Suitable extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	No information available.

### Specific hazards arising from the chemical

Thermal decomposition can lead to release of irritating and toxic gases and vapors

### Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

- Evacuate personnel to safe areas
- Ensure adequate ventilation, especially in confined areas
- Remove all sources of ignition
- Use personal protection recommended in Section 8

### Methods and material for containment and cleaning up

- Prevent further leakage or spillage if safe to do so
- Pick up and transfer to properly labeled containers

Avoid release to the environment

## 7. HANDLING AND STORAGE

### Precautions for safe handling

- Handle in accordance with good industrial hygiene and safety practice
- Ensure adequate ventilation, especially in confined areas
- Avoid creating dust
- Avoid contact with eyes
- Wash thoroughly after handling
- Use personal protection recommended in Section 8

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

Keep containers tightly closed in a dry, cool and well-ventilated place

Keep away from heat

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control parameters**

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH	Denmark	European Union
Nickel (CAS #: 7440-02-0)	TWA: 1.5 mg/m <sup>3</sup> inhalable fraction	TWA: 1 mg/m <sup>3</sup> (vacated) TWA: 1 mg/m <sup>3</sup>	IDLH: 10 mg/m <sup>3</sup> IDLH: 10 mg/m <sup>3</sup> Ni TWA: 0.015 mg/m <sup>3</sup> TWA: 0.015 mg/m <sup>3</sup> except Nickel carbonyl Ni	TWA: 0.05 mg/m <sup>3</sup>	-
Cadmium and compounds (as Cd) (CAS #: 7440-43-9)	TWA: 0.01 mg/m <sup>3</sup> TWA: 0.002 mg/m <sup>3</sup> respirable fraction TWA: 0.01 mg/m <sup>3</sup> Cd TWA: 0.002 mg/m <sup>3</sup> Cd respirable fraction	TWA: 0.1 mg/m <sup>3</sup> fume applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect TWA: 0.2 mg/m <sup>3</sup> dust applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect TWA: 5 µg/m <sup>3</sup> (vacated) STEL: 0.3 ppm fume Ceiling: 0.3 mg/m <sup>3</sup> fume applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect Ceiling: 0.6 mg/m <sup>3</sup> dust applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect	IDLH: 9 mg/m <sup>3</sup> dust IDLH: 9 mg/m <sup>3</sup> Cd dust and fume	TWA: 0.005 mg/m <sup>3</sup>	-
Cadmium hydroxide (Cd(OH) <sub>2</sub> ) (CAS #: 21041-95-2)	TWA: 0.01 mg/m <sup>3</sup> Cd TWA: 0.002 mg/m <sup>3</sup> Cd respirable fraction	-	-	TWA: 0.005 mg/m <sup>3</sup>	-
Nickel hydroxide (CAS #: 12054-48-7)	TWA: 0.2 mg/m <sup>3</sup> Ni inhalable fraction	TWA: 1 mg/m <sup>3</sup> Ni (vacated) TWA: 1 mg/m <sup>3</sup> Ni	IDLH: 10 mg/m <sup>3</sup> Ni TWA: 0.015 mg/m <sup>3</sup> except Nickel carbonyl Ni	TWA: 0.05 mg/m <sup>3</sup>	-

Chemical Name	Latvia	France	Finland	Germany	Italy
Nickel (CAS #: 7440-02-0)	TWA: 0.05 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup> TWA: 0.1 mg/m <sup>3</sup>	Skin	-
Cadmium and compounds (as Cd) (CAS #: 7440-43-9)	TWA: 0.01 mg/m <sup>3</sup> STEL: 0.05 mg/m <sup>3</sup>	TWA: 0.05 mg/m <sup>3</sup>	TWA: 0.02 mg/m <sup>3</sup> Skin	Skin	-
Nickel hydroxide (CAS #: 12054-48-7)	TWA: 0.05 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup>	TWA: 0.1 mg/m <sup>3</sup>	Skin	-

Chemical Name	Poland	Portugal	Spain	Switzerland	Netherlands
Nickel (CAS #: 7440-02-0)	TWA: 0.25 mg/m <sup>3</sup>	TWA: 1.5 mg/m <sup>3</sup>	TWA: 1 mg/m <sup>3</sup>	TWA: 0.5 mg/m <sup>3</sup>	-
Cadmium and compounds (as Cd) (CAS #: 7440-43-9)	TWA: 0.01 mg/m <sup>3</sup> TWA: 0.002 mg/m <sup>3</sup>	TWA: 0.01 mg/m <sup>3</sup> TWA: 0.002 mg/m <sup>3</sup>	TWA: 0.01 mg/m <sup>3</sup> TWA: 0.002 mg/m <sup>3</sup>	Skin TWA: 0.015 mg/m <sup>3</sup>	-
Nickel hydroxide (CAS #: 12054-48-7)	TWA: 0.25 mg/m <sup>3</sup>	TWA: 0.2 mg/m <sup>3</sup>	TWA: 0.2 mg/m <sup>3</sup>	TWA: 0.05 mg/m <sup>3</sup>	-

Chemical Name	Norway	United Kingdom	Australia	Austria	Belgium
Nickel (CAS #: 7440-02-0)	TWA: 0.05 mg/m <sup>3</sup> STEL: 0.15 mg/m <sup>3</sup>	STEL: 1.5 mg/m <sup>3</sup> TWA: 0.5 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>	-	-

Cadmium and compounds (as Cd) (CAS #: 7440-43-9)	TWA: 0.05 mg/m <sup>3</sup> STEL: 0.15 mg/m <sup>3</sup>	STEL: 0.075 mg/m <sup>3</sup> TWA: 0.025 mg/m <sup>3</sup>	0.01 mg/m <sup>3</sup>	-	-
Cadmium hydroxide (Cd(OH) <sub>2</sub> ) (CAS #: 21041-95-2)	-	-	0.01 mg/m <sup>3</sup>	-	-
Nickel hydroxide (CAS #: 12054-48-7)	TWA: 0.05 mg/m <sup>3</sup> STEL: 0.15 mg/m <sup>3</sup>	TWA: 0.5 mg/m <sup>3</sup>	-	-	-

**Appropriate engineering controls**

Showers  
Eyewash stations  
Ventilation systems

**Individual protection measures, such as personal protective equipment**

Respiratory protection If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hand Protection Wear protective gloves.

Eye/face protection No special technical protective measures are necessary.

Skin and body protection Wear suitable protective clothing.

**9. PHYSICAL AND CHEMICAL PROPERTIES****Information on basic physical and chemical properties**

<b>Appearance</b>	Solid
<b>Color</b>	No information available
<b>Odor</b>	Odorless
<b>Odor Threshold</b>	Not determined
<b>pH</b>	Not determined
<b>Melting point/freezing point</b>	Not determined
<b>Boiling point / boiling range</b>	Not determined
<b>Flash point</b>	Not applicable
<b>Evaporation rate</b>	Not determined
<b>Flammability (solid, gas)</b>	Not determined
<b>Flammability Limit in Air</b>	Not determined
<b>Vapor Pressure</b>	Not applicable
<b>Vapor density</b>	Not determined
<b>Density</b>	Not determined
<b>Relative density</b>	Not determined
<b>Bulk density</b>	Not determined
<b>Specific gravity</b>	Not determined
<b>Water solubility</b>	Not determined
<b>Partition coefficient (LogPow)</b>	Not determined
<b>Autoignition temperature</b>	Not determined
<b>Decomposition temperature</b>	Not determined
<b>Kinematic viscosity</b>	Not determined
<b>Dynamic viscosity</b>	Not determined
<b>Explosive properties</b>	Not an explosive
<b>Oxidizing properties</b>	Not determined

**Other information**

No information available

**10. STABILITY AND REACTIVITY****Reactivity**

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

**Chemical stability**

Stable under normal conditions

**Possibility of Hazardous Reactions**

None under normal processing

**Conditions to avoid**

Strong heating. Incompatible materials

**Incompatible materials**

Strong acids Strong bases Strong oxidizing agents

**Hazardous Decomposition Products**

None known based on information supplied

**11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure**

Inhalation Inhalation of vapors in high concentration may cause irritation of respiratory system  
 Eye contact Contact with eyes may cause irritation  
 Skin Contact Substance may cause slight skin irritation  
 Ingestion may cause irritation to mucous membranes

**Information on toxicological effects****Acute toxicity**

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Nickel (CAS #: 7440-02-0)	> 9000 mg/kg ( Rat )	-	-
Cadmium and compounds (as Cd) (CAS #: 7440-43-9)	= 2330 mg/kg ( Rat )	-	= 25 mg/m <sup>3</sup> ( Rat ) 30 min
Nickel hydroxide (CAS #: 12054-48-7)	-	-	= 1200 mg/m <sup>3</sup> ( Rat ) 4 h
Iron (CAS #: 7439-89-6)	98.6 g/kg bw (rat)	-	-

**Skin corrosion/irritation**

Non-irritating to the skin

**Serious eye damage/eye irritation**

No eye irritation

**Sensitization**

No information available

**Germ cell mutagenicity**

No information available

**Carcinogenicity**

This product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP

Chemical Name	ACGIH	IARC	NTP	OSHA
Nickel (CAS #: 7440-02-0)	-	Group 2B	Known Reasonably Anticipated	X
Cadmium and compounds (as Cd) (CAS #: 7440-43-9)	A2	Group 1	Known	X
Cadmium hydroxide (Cd(OH) <sub>2</sub> ) (CAS #: 21041-95-2)	A2	-	-	-
Nickel hydroxide (CAS #: 12054-48-7)	A1	Group 1	Known	X

**Reproductive toxicity**

No information available

**STOT - single exposure**

No information available

**STOT - repeated exposure**

No information available

**Aspiration hazard**

No information available

**12. ECOLOGICAL INFORMATION****Ecotoxicity**

Chemical Name	Algae/aquatic plants EC50	Fish LC50	Crustacea EC50
Nickel (CAS #: 7440-02-0)	0.18 mg/L/72h Pseudokirchneriella subcapitata 0.174 - 0.311 mg/L/96h Pseudokirchneriella subcapitata static	100 mg/L/96h Brachydanio rerio 1.3 mg/L/96h Cyprinus carpio semi-static 10.4 mg/L/96h Cyprinus carpio static	100 mg/L/48h Daphnia magna 1 mg/L/48h Daphnia magna Static
Cadmium and compounds (as Cd) (CAS #: 7440-43-9)	-	0.003: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.006: 96 h Oncorhynchus mykiss mg/L LC50 static 0.002: 96 h Cyprinus carpio mg/L LC50 4.26: 96 h Cyprinus carpio mg/L LC50 semi-static 0.24: 96 h Cyprinus carpio mg/L LC50 static 21.1: 96 h Lepomis macrochirus mg/L LC50 flow-through 0.016: 96 h Oryzias latipes mg/L LC50 0.0004 - 0.003: 96 h Pimephales promelas mg/L LC50	0.0244: 48 h Daphnia magna mg/L EC50 Static
Iron (CAS #: 7439-89-6)	-	-	> 100 mg/L/48h (Daphnia magna)

**Persistence and degradability**

No information available

**Bioaccumulative potential**

No information available

**Mobility in soil**

No information available

**Other adverse effects**

No information available

**13. DISPOSAL CONSIDERATIONS****Waste treatment methods**

Disposal of wastes

Disposal should be in accordance with applicable regional, national and local laws and regulations

Contaminated packaging

Dispose of in accordance with federal, state and local regulations

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
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Nickel 7440-02-0	-	Included in waste streams: F006, F039	-	-
Cadmium and compounds (as Cd) 7440-43-9	-	Included in waste streams: F006, F039, K061, K069, K100	1.0 mg/L regulatory level	-
<b>Chemical Name</b>		<b>California Hazardous Waste Status</b>		
Nickel 7440-02-0		Toxic powder Ignitable powder		

## 14. TRANSPORT INFORMATION

It is considered as non-dangerous good by the ICAO, IATA, IMDG and TDG.

According to IATA DGR 56th Edition for transportation and International Maritime Dangerous Goods (IMDG Code 36th) and the Recommendation on the Transportation of Dangerous Goods-Model Regulation (18th)

The products are not subjects/subject to dangerous.

### DOT / IMDG / IATA

<b>UN/ID No.</b>	Not regulated
<b>Proper shipping name</b>	Not regulated
<b>Hazard Class</b>	Not regulated
<b>Packing Group</b>	Not regulated
<b>Special precautions</b>	No information available
<b>Marine pollutant</b>	Not applicable

## 15. REGULATORY INFORMATION

### International Inventories

Component	AICS	DSL/NDL	EINECS/ELI NCS	ENCS	IECSC	KECL	PICCS	TSCA
Nickel 7440-02-0 ( 10 - 30 )	X	X	X	-	X	X	X	X
Cadmium and compounds (as Cd) 7440-43-9 ( 10 - 30 )	X	X	X	-	X	X	X	X
Cadmium hydroxide (Cd(OH) <sub>2</sub> ) 21041-95-2 ( 10 - 30 )	X	X	-	-	X	-	-	-
Nickel hydroxide 12054-48-7 ( 10 - 30 )	X	X	X	X	X	X	X	X
Iron 7439-89-6 ( 10 - 30 )	X	X	X	-	X	X	X	X

"-" Not Listed

"X" Listed

### US Federal Regulations

#### **SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	SARA 313 - Threshold Values %
Nickel - 7440-02-0	0.1
Cadmium and compounds (as Cd) - 7440-43-9	0.1
Nickel hydroxide - 12054-48-7	0.1

**SARA 311/312 Hazard Categories**

Does not apply

**CWA (Clean Water Act)**

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Nickel 7440-02-0	-	X	X	-
Cadmium and compounds (as Cd) 7440-43-9	-	X	X	-
Cadmium hydroxide (Cd(OH) <sub>2</sub> ) 21041-95-2	-	X	-	-
Nickel hydroxide 12054-48-7	-	X	-	X

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Nickel 7440-02-0	100 lb	-	RQ 100 lb final RQ RQ 45.4 kg final RQ
Cadmium and compounds (as Cd) 7440-43-9	10 lb	-	RQ 10 lb final RQ RQ 4.54 kg final RQ
Nickel hydroxide 12054-48-7	10 lb	-	RQ 10 lb final RQ RQ 4.54 kg final RQ

**US State Regulations****California Proposition 65**

This product contains the following Proposition 65 chemicals

Chemical Name	California Proposition 65
Nickel - 7440-02-0	Carcinogen
Cadmium and compounds (as Cd) - 7440-43-9	Carcinogen Developmental Male Reproductive
Cadmium hydroxide (Cd(OH) <sub>2</sub> ) - 21041-95-2	Carcinogen
Nickel hydroxide - 12054-48-7	Carcinogen

**U.S. State Right-to-Know Regulations**

This product may contain substances regulated by state right-to-know regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Nickel 7440-02-0	X	X	X
Cadmium and compounds (as Cd) 7440-43-9	X	X	X
Nickel hydroxide 12054-48-7	X	X	X

**16. OTHER INFORMATION****Revision Note**

Issue Date 21-Jan-2015  
Revision date 21-Jan-2015  
Revision Note Not applicable

**Key or legend to abbreviations and acronyms used in the safety data sheet**

**TWA** - TWA (time-weighted average)  
**STEL** - STEL (Short Term Exposure Limit)  
**Ceiling** - Maximum limit value  
**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory



- DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS** - Japan Existing and New Chemical Substances
- IECSC** - China Inventory of Existing Chemical Substances
- KECL** - Korean Existing and Evaluated Chemical Substances
- PICCS** - Philippines Inventory of Chemicals and Chemical Substances
- AICS** - Australian Inventory of Chemical Substances

**Disclaimer**

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

----- End of Safety Data Sheet -----