

# SAFETY DATA SHEET

HCS-2012 APPENDIX D TO §1910.1200

Report No. E46933- CNT20180665-Ni-Cd  
Product Name Nickel Cadmium Battery

Issue Date 04-Jan-2017  
Revision date 27-Feb-2018



## 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

No information available

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

Recommended Use Used for electric tools, etc.  
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 +86-513-80795666  
FAX +86-513-83312306  
E-mail chenj@highstar.net.cn

Importer  
Address  
Postal Code  
Phone  
FAX  
E-mail

### Emergency telephone number

+86-513-80795666

## 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 Not classified.  
Precautionary Statements  
Prevention None.  
Response None.  
Storage None.  
Disposal None.

### Hazards not otherwise classified (HNOC)

No information available

### Unknown acute toxicity

No information available



### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature	Article	CAS No	Weight-%
Nickel		7440-02-0	10 - 25
Cadmium		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

### 4. FIRST AID MEASURES

#### Description of first aid measures

General advice	In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).
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. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Ingestion	Not an expected route of exposure. If swallowed, call a poison control center or physician immediately.

#### 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  
 Carbon oxides (CO<sub>x</sub>), metal oxides

#### 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. Cool containers with flooding quantities of water until well after fire is out. Evacuate personnel to safe areas.

### 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. Avoid contact with skin, eyes or clothing. Do not touch or walk through spilled material. Avoid breathing vapors or mists.

#### 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.

## 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 generation of dust. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with skin, eyes or clothing. Wash thoroughly after handling. Use personal protection recommended in Section 8. Take precautionary measures against static discharges. Do not eat, drink or smoke when using this product.

### Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks, flame and other sources of ignition. Keep locked up and out of reach of children. Keep away from food, drink and animal feeding stuffs. Store in accordance with local regulations.

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

### Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas. Remove all sources of ignition.

### 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	Wear safety glasses with side shields (or goggles).
Skin and body protection	Wear suitable protective clothing.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### Information on basic physical and chemical properties

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

**Oxidizing properties**

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**Carbon oxides (CO<sub>x</sub>), metal oxides.**11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure**

Inhalation	Not an expected route of exposure
Eye contact	Dust contact with the eyes can lead to mechanical irritation
Skin Contact	No known effect based on information supplied
Ingestion	Not an expected route of exposure

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

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Nickel (CAS #: 7440-02-0)	> 9000 mg/kg ( Rat )	-	-
Cadmium (CAS #: 7440-43-9)	= 1140 mg/kg ( Rat )	-	= 25 mg/m <sup>3</sup> ( Rat ) 30 min
Nickel hydroxide (CAS #: 12054-48-7)	= 1515 mg/kg ( Rat )	> 2 g/kg ( Rat )	= 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 sensitization responses were observed.

**Germ cell mutagenicity**

No information available.

**Carcinogenicity**

Chemical Name	ACGIH	IARC	NTP	OSHA
Nickel (CAS #: 7440-02-0)	-	Group 2B	Reasonably Anticipated	X



Cadmium (CAS #: 7440-43-9)	A2	Group 1	Known	X
Cadmium hydroxide (Cd(OH) <sub>2</sub> ) (CAS #: 21041-95-2)	A2	Group 1	Known	-
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 (CAS #: 7440-43-9)	-	0.003: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.0004 - 0.003: 96 h Pimephales promelas mg/L LC50 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	0.0244: 48 h Daphnia magna mg/L EC50 Static
Iron (CAS #: 7439-89-6)	-	13.6: 96 h Morone saxatilis mg/L LC50 static	> 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
Nickel 7440-02-0	-	Included in waste streams: F006, F039	-	-
Cadmium 7440-43-9	-	Included in waste streams: F006, F039, K061, K069, K100	1.0 mg/L regulatory level	-

Chemical Name	California Hazardous Waste Status
Nickel 7440-02-0	Toxic powder Ignitable powder

**14. TRANSPORT INFORMATION**

According to International Maritime Dangerous Goods Code (2016 Edition), the product is not subject as dangerous goods.  
 According to IATA DGR 59th edition, the product is not subject as dangerous goods.

**IMDG/IATA**

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

**15. REGULATORY INFORMATION**

**International Inventories**

Component	AICS	DSL/NDSL	EINECS/ELI NCS	ENCS	IECSC	KECL	PICCS	TSCA
Nickel 7440-02-0 ( 10 - 25 )	X	X	X	Exempt	X	X	X	X
Cadmium 7440-43-9 ( 10 - 25 )	X	X	X	Exempt	X	X	X	X
Cadmium hydroxide (Cd(OH)2) 21041-95-2 ( 12 - 23 )	X	X	X	X	X	X	-	-
Nickel hydroxide 12054-48-7 ( 6 - 14 )	X	X	X	X	X	X	X	X
Iron 7439-89-6 ( 10 - 13 )	X	X	X	Exempt	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 - 7440-43-9	0.1
Nickel hydroxide - 12054-48-7	0.1

**SARA 311/312 Hazard Categories**

Not applicable

**CWA (Clean Water Act)**

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

**CERCLA**

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 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 - 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**

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Nickel 7440-02-0	X	X	X
Cadmium 7440-43-9	X	X	X
Cadmium hydroxide (Cd(OH) <sub>2</sub> ) 21041-95-2	X	-	-
Nickel hydroxide 12054-48-7	X	X	X

**16. OTHER INFORMATION**

**Revision Note**

Issue Date 04-Jan-2017  
 Revision date 27-Feb-2018  
 Revision Note Update transport information

**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/NDSL** - 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 -----

冊  
入  
シ