SAFETY DATA SHEET

Regulation (EC) No 1907/2006 (REACH), Annex II
(COMMISSION REGULATION (EU) No 453/2010)

Version 1 **Issue Date** 08-Jun-2015
Product Name Nickel Cadmium Battery **Revision date** 13-Jul-2015

SECTION 1: Identification of the substance /mixture and of the company/undertaking

1.1. Product identifier

Product Name	Nickel Cadmium Battery
REACH registration number	No information available

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

Recommended Use	Used to supply electrical energy
Uses advised against	No information available

1.3. Details of the supplier of the safety data sheet

Supplier	Jiangmen JJJ Battery Co., Ltd.
Address	No.83 Yongsheng Road, Baisha Ind. Dev. Area West, Jiangmen city, Guangdong province, China
Postal Code	529000
Phone	+86-750-3534405
FAX	+86-750-3534305
E-mail	lsp@jjjbattery.com

1.4. Emergency telephone number

+86-750-3534405

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

This product is not classified as hazardous.

2.2. Label elements

Symbols/Pictograms	None
Signal word	None
Hazard Statements	Not applicable
Precautionary Statements	Not applicable

2.3. Other hazards

No information available

SECTION 3: Composition/information on ingredients

3.1. Mixture

Chemical Name	EC No	CAS No	Weight-%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Iron	231-096-4	7439-89-6	34.4	Not classified

Cadmium oxide	215-146-2	1306-19-0	28.3	Acute Tox. 2 (H330) Muta. 2 (H341) Carc. 1B (H350) Repr. 2 (H361fd) STOT RE 1 (H372) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)
Nickel hydroxide	235-008-5	12054-48-7	18.9	Acute Tox. 4 (H302) Acute Tox. 4 (H332) Skin Irrit. 2 (H315) Resp. Sens. 1 (H334) Skin Sens. 1 (H317) Muta. 2 (H341) Carc. 1A (H350i) Repr. 1B (H360D) STOT RE 1 (H372) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)
Nickel	231-111-4	7440-02-0	5	Carc. 2; H351 STOT RE 1; H372 Skin Sens. 1; H317 Aquatic Chronic 3; H412
Potassium hydroxide	215-181-3	1310-58-3	3.7	Acute Tox. 4 (H302) Skin Corr. 1A (H314)
Cadmium and compounds (as Cd)	231-152-8	7440-43-9	3.3	Acute Tox. 2 (H330) Muta. 2 (H341) Carc. 1B (H350) Repr. 2 (H361fd) STOT RE 1 (H372) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)
Vinylon	N/A	N/A	2.7	Not classified
Cobalt(II) oxide	215-154-6	1307-96-6	2.5	Acute Tox. 4 (H302) Skin Sens. 1 (H317) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)
Nickel powder	231-111-4	7440-02-0	0.9	Carc. 2; H351 STOT RE 1; H372 Skin Sens. 1; H317 Aquatic Chronic 3; H412
Lithium hydroxide	215-183-4	1310-65-2	0.3	Acute Tox. 4 Skin Corr. 1B

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice

Remove contaminated clothing and shoes. If symptoms persist, call a physician.

Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

Skin Contact

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Wash contaminated clothing before reuse. If skin irritation persists, call a physician.

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion
Rinse mouth Get medical attention Never give anything by mouth to an unconscious person

4.2. Most important symptoms and effects, both acute and delayed
No information available

4.3. Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media No information available

5.2. Special hazards arising from the substance or mixture
Thermal decomposition can lead to release of irritating and toxic gases and vapors

5.3. Advice for firefighters
Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Evacuate personnel to safe areas
Ensure adequate ventilation, especially in confined areas
Remove all sources of ignition
Avoid contact with skin, eyes and inhalation of vapors
Use personal protection recommended in Section 8

6.2. Environmental precautions
Local authorities should be advised if significant spillages cannot be contained
Prevent entry into waterways, sewers, basements or confined areas

6.3. Methods and material for containment and cleaning up
Place in container for disposal according to local / national regulations (see Section 13)

6.4. Reference to other sections
See Section 7 for more information
See section 8 for more information
See section 13 for more information

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Handle in accordance with good industrial hygiene and safety practice
Ensure adequate ventilation, especially in confined areas
Avoid contact with skin, eyes or clothing
Wash contaminated clothing before reuse
Take precautionary measures against static discharges
Do not breathe dust/fume/gas/mist/vapors/spray
Do not eat, drink or smoke when using this product
Wash thoroughly after handling
Use personal protection recommended in Section 8

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place
Keep away from heat
Keep locked up and out of reach of children
Store in accordance with local regulations

7.3. Specific end use(s)

Apart from the uses mentioned in SECTION 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Chemical Name	Australia	Austria	Belgium	Denmark	European Union
Cadmium oxide (CAS #: 1306-19-0)	0.01 mg/m^3	-	-	TWA: 0.005 mg/m^3	-
Nickel hydroxide (CAS #: 12054-48-7)	-	-	-	TWA: 0.05 mg/m^3	-
Nickel (CAS #: 7440-02-0)	1 mg/m^3	-	-	TWA: 0.05 mg/m^3	-
Potassium hydroxide (CAS #: 1310-58-3)	2 mg/m^3 Peak	TWA: 2 mg/m^3	-	Ceiling: 2 mg/m^3	-
Cadmium and compounds (as Cd) (CAS #: 7440-43-9)	0.01 mg/m^3	-	-	TWA: 0.005 mg/m^3	-
Cobalt(II) oxide (CAS #: 1307-96-6)	-	Skin	-	TWA: 0.01 mg/m^3	-

Chemical Name	Latvia	France	Finland	Germany	Italy
Cadmium oxide (CAS #: 1306-19-0)	TWA: 0.01 mg/m^3 STEL: 0.05 mg/m^3	TWA: 0.05 mg/m^3 STEL: 0.05 mg/m^3	TWA: 0.02 mg/m^3 TWA: 0.01 mg/m^3 Skin	Skin	-
Nickel hydroxide (CAS #: 12054-48-7)	TWA: 0.05 mg/m^3	TWA: 1 mg/m^3	TWA: 0.1 mg/m^3	Skin	-
Nickel (CAS #: 7440-02-0)	TWA: 0.05 mg/m^3	TWA: 1 mg/m^3	TWA: 1 mg/m^3 TWA: 0.1 mg/m^3	Skin	-
Potassium hydroxide (CAS #: 1310-58-3)	-	STEL: 2 mg/m^3	STEL: 2 mg/m^3 Ceiling: 2 mg/m^3	-	-
Cadmium and compounds (as Cd) (CAS #: 7440-43-9)	TWA: 0.01 mg/m^3 STEL: 0.05 mg/m^3	TWA: 0.05 mg/m^3	TWA: 0.02 mg/m^3 Skin	Skin	-
Cobalt(II) oxide (CAS #: 1307-96-6)	TWA: 0.5 mg/m^3	-	TWA: 0.02 mg/m^3	Skin	-

Chemical Name	Poland	Portugal	Spain	Switzerland	Netherlands
Cadmium oxide (CAS #: 1306-19-0)	TWA: 0.01 mg/m^3 TWA: 0.002 mg/m^3	TWA: 0.002 mg/m^3	TWA: 0.01 mg/m^3 TWA: 0.002 mg/m^3	Skin TWA: 0.002 mg/m^3 TWA: 0.015 mg/m^3	TWA: 0.005 mg/m^3
Nickel hydroxide (CAS #: 12054-48-7)	TWA: 0.25 mg/m^3	TWA: 0.2 mg/m^3	TWA: 0.2 mg/m^3	TWA: 0.05 mg/m^3	-
Nickel (CAS #: 7440-02-0)	TWA: 0.25 mg/m^3	TWA: 1.5 mg/m^3	TWA: 1 mg/m^3	TWA: 0.5 mg/m^3	-
Potassium hydroxide (CAS #: 1310-58-3)	STEL: 1 mg/m^3 TWA: 0.5 mg/m^3	Ceiling: 2 mg/m^3	STEL: 2 mg/m^3	TWA: 2 mg/m^3	-
Cadmium and compounds (as Cd) (CAS #: 7440-43-9)	TWA: 0.01 mg/m^3 TWA: 0.002 mg/m^3	TWA: 0.01 mg/m^3 TWA: 0.002 mg/m^3	TWA: 0.01 mg/m^3 TWA: 0.002 mg/m^3	Skin TWA: 0.015 mg/m^3	-
Cobalt(II) oxide (CAS #: 1307-96-6)	TWA: 0.02 mg/m^3	TWA: 0.02 mg/m^3	TWA: 0.02 mg/m^3	Skin TWA: 0.05 mg/m^3	-

Chemical Name	Norway	United Kingdom	ACGIH TLV	OSHA PEL	NIOSH IDLH
Cadmium oxide (CAS #: 1306-19-0)	TWA: 0.05 mg/m^3 Ceiling: 0.02 mg/m^3 STEL: 0.05 mg/m^3	STEL: 0.05 mg/m^3 TWA: 0.025 mg/m^3	TWA: 0.01 mg/m^3 Cd TWA: 0.002 mg/m^3 Cd respirable fraction	-	IDLH: 9 mg/m^3 Cd fume IDLH: 9 mg/m^3 Cd dust and fume
Nickel hydroxide (CAS #: 12054-48-7)	TWA: 0.05 mg/m^3 STEL: 0.05 mg/m^3	TWA: 0.5 mg/m^3	TWA: 0.2 mg/m^3 Ni inhalable fraction	TWA: 1 mg/m^3 Ni (vacated) TWA: 1 mg/m^3 Ni	IDLH: 10 mg/m^3 Ni TWA: 0.015 mg/m^3 except Nickel carbonyl Ni

Nickel (CAS #: 7440-02-0)	TWA: 0.05 mg/m^3 STEL: 0.05 mg/m^3	STEL: 1.5 mg/m^3 TWA: 0.5 mg/m^3	TWA: 1.5 mg/m^3 inhalable fraction	TWA: 1 mg/m^3 (vacated) TWA: 1 mg/m^3	IDLH: 10 mg/m^3 IDLH: 10 mg/m^3 Ni TWA: 0.015 mg/m^3 TWA: 0.015 mg/m^3 except Nickel carbonyl Ni
Potassium hydroxide (CAS #: 1310-58-3)	Ceiling: 2 mg/m^3	STEL: 2 mg/m^3	Ceiling: 2 mg/m^3	(vacated) Ceiling: 2 mg/m^3	Ceiling: 2 mg/m^3
Cadmium and compounds (as Cd) (CAS #: 7440-43-9)	TWA: 0.05 mg/m^3 STEL: 0.05 mg/m^3	STEL: 0.075 mg/m^3 TWA: 0.025 mg/m^3	TWA: 0.01 mg/m^3 TWA: 0.002 mg/m^3 respirable fraction TWA: 0.01 mg/m^3 Cd TWA: 0.002 mg/m^3 Cd respirable fraction	TWA: 0.1 mg/m^3 fume applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect TWA: 0.2 mg/m^3 dust applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect TWA: 5 µg/m^3 (vacated) STEL: 0.3 ppm fume Ceiling: 0.3 mg/m^3 fume applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect Ceiling: 0.6 mg/m^3 dust applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect	IDLH: 9 mg/m^3 dust IDLH: 9 mg/m^3 Cd dust and fume
Cobalt(II) oxide (CAS #: 1307-96-6)	TWA: 0.02 mg/m^3 STEL: 0.02 mg/m^3 STEL: 0.06 mg/m^3	TWA: 0.1 mg/m^3	TWA: 0.02 mg/m^3 Co	-	-

Derived No Effect Level (DNEL)
No information available

Predicted No Effect Concentration (PNEC)
No information available

8.2. Exposure controls

Engineering Controls
Use with local exhaust ventilation. Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles)
Hand Protection	Wear protective gloves
Skin and body protection	Suitable protective clothing
Respiratory protection	In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls
Do not allow into any sewer, on the ground or into any body of water

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Solid
Color	Colorized
Odor	Odourless

Odor Threshold	Not determined
pH	Not determined
Melting point/freezing point	Not determined
Boiling point / boiling range	Not determined
Flash point	Not determined
Evaporation rate	Not determined
Flammability (solid, gas)	Not determined
Flammability Limit in Air	Not determined
Vapor Pressure	Not determined
Vapor density	Not determined
Density	Not determined
Relative density	Not determined
Specific gravity	Not determined
Water solubility	Not determined
Partition coefficient (LogPow)	Not determined
Autoignition temperature	Not determined
Decomposition temperature	Not determined
Kinematic viscosity	Not determined
Dynamic viscosity	Not determined
Explosive properties	Not predicted to be explosive.
Oxidizing properties	Not predicted to have oxidising properties.

9.2. Other information
No information available

SECTION 10: Stability and reactivity

10.1. Reactivity
Stable under recommended storage and handling conditions (see section 7, handling and storage).

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
None under normal processing.

10.4. Conditions to avoid
Heat, flames and sparks

10.5. Incompatible materials
Strong oxidizing agents. Strong acids. Strong bases.

10.6. Hazardous decomposition products
None under normal use conditions

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Iron (CAS #: 7439-89-6)	98.6 g/kg bw (rat)	-	-
Cadmium oxide (CAS #: 1306-19-0)	= 72 mg/kg (Rat)	-	= 45 mg/m^3 (Rat) 1 h
Nickel hydroxide (CAS #: 12054-48-7)	= 1515 mg/kg (Rat)	> 2 g/kg (Rat)	= 1200 mg/m^3 (Rat) 4 h
Nickel (CAS #: 7440-02-0)	> 9000 mg/kg (Rat)	-	-

Potassium hydroxide (CAS #: 1310-58-3)	= 333 mg/kg (Rat)	-	-
Cadmium and compounds (as Cd) (CAS #: 7440-43-9)	= 1140 mg/kg (Rat)	-	= 25 mg/m^3 (Rat) 30 min
Cobalt(II) oxide (CAS #: 1307-96-6)	= 159 mg/kg (Rat) = 202 mg/kg (Rat)	-	-
Lithium hydroxide (CAS #: 1310-65-2)	= 210 mg/kg (Rat)	-	= 960 mg/m^3 (Rat) 4 h

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	European Union	IARC
Cadmium oxide (CAS #: 1306-19-0)	Carc. 1B	Group 1
Nickel hydroxide (CAS #: 12054-48-7)	Carc. 1A	Group 1
Nickel (CAS #: 7440-02-0)	Carc. 2	Group 2B
Cadmium and compounds (as Cd) (CAS #: 7440-43-9)	Carc. 1B	Group 1
Cobalt(II) oxide (CAS #: 1307-96-6)	-	Group 2B

Reproductive toxicity
No information available.

STOT - single exposure
No information available.

STOT - repeated exposure
No information available.

Aspiration hazard
No information available.

SECTION 12: Ecological information

12.1. Toxicity

Chemical Name	Algae/aquatic plants EC50	Fish LC50	Crustacea EC50
Iron (CAS #: 7439-89-6)	-	13.6: 96 h Morone saxatilis mg/L LC50 static	> 100 mg/L/48h (Daphnia magna)
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
Potassium hydroxide (CAS #: 1310-58-3)	-	80mg/L/96h Gambusia affinis static	-

Cadmium and compounds (as Cd) (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

12.2. Persistence and degradability
No information available.

12.3. Bioaccumulative potential

Chemical Name	Partition coefficient (LogPow)
Potassium hydroxide (CAS #: 1310-58-3)	0.65 0.83

12.4. Mobility in soil
No information available

12.5. Results of PBT and vPvB assessment
PBT/vPvB assessment information is not available as chemical safety assessment not conducted.

12.6. Other adverse effects
No information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues/unused products	Disposal should be in accordance with applicable regional, national and local laws and regulations
Contaminated packaging	Disposal should be in accordance with applicable regional, national and local laws and regulations

SECTION 14: Transport information

14.1 UN Number	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard Class	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazards	Not applicable
14.6 Special precautions	No information available
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable

SECTION 15: Regulatory information

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

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work

Take note of Directive 94/33/EC on the protection of young people at work

Take note of Directive 92/85/EC on the protection of pregnant and breastfeeding women at work

International Inventories

Component	TSCA	DSL/NDSL	EINECS/ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Iron 7439-89-6 (34.4)	X	X	X	-	X	X	X	X
Cadmium oxide 1306-19-0 (28.3)	X	X	X	X	X	X	X	X
Nickel hydroxide 12054-48-7 (18.9)	X	X	X	X	X	X	X	X
Nickel 7440-02-0 (5.9)	X	X	X	-	X	X	X	X
Potassium hydroxide 1310-58-3 (3.7)	X	X	X	X	X	X	X	X
Cadmium and compounds (as Cd) 7440-43-9 (3.3)	X	X	X	-	X	X	X	X
Cobalt(II) oxide 1307-96-6 (2.5)	X	X	X	X	X	X	X	X
Lithium hydroxide 1310-65-2 (0.3)	X	X	X	X	X	X	X	X

"-" Not Listed
"X" Listed

15.2. Chemical safety assessment

No information available

SECTION 16: Other information

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

Issue Date 08-Jun-2015
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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/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

Full text of H-Statements referred to under section 3

H302: Harmful if swallowed.
H314: Causes severe skin burns and eye damage.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H330: Fatal if inhaled.
H332: Harmful if inhaled.
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341: Suspected of causing genetic defects.
H350: May cause cancer.
H351: Suspected of causing cancer.
H360: May damage fertility or the unborn child.
H361: Suspected of damaging fertility or 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.

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 --------