SAFETY DATA SHEET

Revision Number 1 Issuing Date No data available

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name Nickel Metal Hydride (NiMH) Battery

Model Name AAA,AA,A1800，A3800，AA2300，AAA300，AAA900，SC3500，D5000，D8000，A1000，A1100，A1200，A2000，A2500，A3300，A3600，AA300，AA500，AA600，AA700，AA800，AA900，AA1000，AA1100，AA1200，AA1300，AA1400，AA1500，AA1600，AA1700，AA1800，AA1900，AA2000，AA2100，AA2200，AA2300，AA2400，AA2500，AAA400，AAA450，AAA500，AAA600，AAA650，AAA700，AAA750，AAA800，AAA850，AAA900，SC1200，SC1300，SC1500，SC1800，SC2000，SC2400，SC2800，SC3000，C2000，C2500，C3000，C3500，C3800，C4000，C4200，C4500，C5000，D4000，D6000，D7000

Other means of identification

Synonyms None

Recommended use of the chemical and restrictions on use

Recommended Use Nickel Metal Hydride (NiMH) Battery
Uses advised against No information available

Details of the supplier of the safety data sheet

Supplier Name SHENZHEN HL BATTERY CO.,LTD
Supplier Address 228TH,HEKANCUN INDUSTRIAL ZONE,BANTIAN,LONGGANG AREA,SHENZHEN
518000
CN
Supplier Phone Number Phone: +860755-81526322
Contact Phone: +860755-81526322
Supplier Email lutosredsun@163.com
Emergency telephone number

2. HAZARDS IDENTIFICATION

Classification

This product is an article which is a sealed battery and as such does not require an MSDS per the OSHA hazard communication standard unless ruptured. The hazards indicated are for a ruptured battery.

Carcinogenicity	Category 2
Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (repeated exposure)	Category 2

GHS Label elements, including precautionary statements

Emergency Overview

Signal word **Warning**

Hazard Statements

Harmful if swallowed
Suspected of causing cancer
Causes severe skin burns and eye damage
May cause damage to organs through prolonged or repeated exposure

Appearance Gray **Physical State** Solid **Odor** Odorless

Precautionary Statements - Prevention

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required

Precautionary Statements - Response

IF exposed or concerned: Get medical advice/attention

Precautionary Statements - Storage

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Not applicable

Unknown Toxicity

Other information

No information available

Interactions with Other Chemicals

No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
Nickel Hydroxide	12054-48-7	29%
Cobalt Oxide	11104-61-3	2%
Rare earth oxides (Lanthanum concentrate)	68188-83-0	33%
Iron	7439-89-6	25%
Nickel	7440-02-0	7%
Zinc	7440-66-6	1.7%
Manganese	7439-96-5	2.3%

4. FIRST AID MEASURES

First aid measures

General Advice First aid is upon rupture of sealed battery.

Eye Contact Rinse thoroughly with plenty of water, also under the eyelids. If symptoms persist, call a physician.

Skin Contact Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.

Inhalation Remove to fresh air. If symptoms persist, call a physician.

Ingestion Do NOT induce vomiting. Drink plenty of water. If symptoms persist, call a physician.

Self-protection of the first aider Use personal protective equipment as required.

Most important symptoms and effects, both acute and delayed

Most Important Symptoms and Effects No information available.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media

CAUTION: Use of water spray when fighting fire may be inefficient

Specific Hazards Arising from the Chemical

No information available.

Uniform Fire Code Sensitizer: Solid
Highly Toxic: Solid

Hazardous Combustion Products

Carbon Oxides

Explosion Data

Sensitivity to Mechanical Impact **No.**

Sensitivity to Static Discharge **No.**

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

Personal Precautions Avoid contact with eyes.

Other Information Refer to protective measures listed in Sections 7 and 8.

Environmental Precautions

Environmental Precautions Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up In case of rupture: Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Keep container tightly closed.

Incompatible Products None known based on information supplied.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Nickel Hydroxide 12054-48-7	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/m3 Ni TWA: 0.015 mg/m3 except Nickel carbonyl Ni
Nickel 7440-02-0	TWA: 1.5 mg/m^3	TWA: 1 mg/m^3 (vacated) TWA: 1 mg/m^3	IDLH: 10 mg/m^3 TWA: 0.015 mg/m^3
Cobalt oxide 11104-61-3	TWA: 0.02 mg/m^3 Co	--	
Manganese 7439-96-5	TWA: 0.02 mg/m^3 respirable fraction TWA: 0.1 mg/m^3 inhalable fraction TWA: 0.02 mg/m^3 Mn TWA: 0.1 mg/m^3 Mn	(vacated) TWA: 1 mg/m^3 fume (vacated) STEL: 3 mg/m^3 fume (vacated) Ceiling: 5 mg/m^3 Ceiling: 5 mg/m^3 fume Ceiling: 5 mg/m^3 Mn	IDLH: 500 mg/m^3 TWA: 1 mg/m^3 fume STEL: 3 mg/m^3
Zinc 7440-66-6	STEL: 10 mg/m$_3$ respirable fraction TWA: 2 mg/m$_3$ respirable fraction	TWA: 5 mg/m$_3$ fume TWA: 15 mg/m$_3$ total dust TWA: 5 mg/m$_3$ respirable fraction	IDLH: 500 mg/m$_3$ Ceiling: 15 mg/m$_3$ dust TWA: 5 mg/m$_3$ dust and fume STEL: 10 mg/m$_3$ fume

ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits NIOSH IDLH Immediately Dangerous to Life or Health

Other Exposure Guidelines Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992) See section 15 for national exposure control parameters

Appropriate engineering controls

Engineering Measures Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/Face Protection No special protective equipment required.

Skin and Body Protection No special protective equipment required.

Respiratory Protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical and Chemical Properties

Physical State	Solid		
Appearance	Gray	**Odor**	Odorless
Color	No information available	**Odor Threshold**	No information available

Property	Values	Remarks/
pH	No data available	None known
Melting / freezing point	No data available	None known
Boiling point / boiling range	No data available	None known
Flash Point	No data available	None known
Evaporation Rate	No data available	None known
Flammability (solid, gas)	No data available	None known
Flammability Limit in Air		
Upper flammability limit	No data available	
Lower flammability limit	No data available	
Vapor pressure	No data available	None known
Vapor density	No data available	None known
Specific Gravity	No data available	None known
Water Solubility	No data available	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	0.0001	None known
Autoignition temperature	No data available	None known
Decomposition temperature	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	0.0001	None known
Explosive properties	No data available	None known
Oxidizing Properties	No data available	None known

Other Information

Softening Point No data available
VOC Content (%) No data available
Particle Size No data available
Particle Size Distribution

10. STABILITY AND REACTIVITY

Reactivity
No data available

Chemical stability
Stable under recommended storage conditions.

Possibility of Hazardous Reactions
None under normal processing.

Hazardous Polymerization
Hazardous polymerization does not occur.

Conditions to avoid
Excessive heat.

Incompatible materials
None known based on information supplied.

Hazardous Decomposition Products
Carbon oxides.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available.
Eye Contact Specific test data for the substance or mixture is not available.
Skin Contact Specific test data for the substance or mixture is not available.
Ingestion Specific test data for the substance or mixture is not available.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Nickel hydroxide 12054-48-7	-	-	= 1200 mg/m^3 (Rat) 4h
Nickel 7440-02-0	> 9000 mg/kg (Rat)	-	-
Mn 7439-96-5	= 9 gm/kg (Rat)	500 mg/24H Mild	-
Iron 7439-89-6	= 984 mg/kg (Rat)	-	-

Information on toxicological effects

Symptoms No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Sensitization May cause sensitization of susceptible persons.
Mutagenic Effects Contains a known or suspected mutagen.
Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
Nickel hydroxide 12054-48-7	A1	Group 1	Known	X
Cobalt oxide 11104-61-3	A3	Group 2B		X
Nickel 7440-02-0		Group 2B	Reasonably Anticipated	X

ACGIH (American Conference of Governmental Industrial Hygienists)
A1 - Known Human Carcinogen
A3 - Animal Carcinogen
IARC (International Agency for Research on Cancer)
Group 1 - Carcinogenic to Humans
Group 2B - Possibly Carcinogenic to Humans
NTP (National Toxicology Program)
Known - Known Carcinogen
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
X- Present

Reproductive Toxicity No information available.
STOT - single exposure No information available.
STOT - repeated exposure No information available.
Chronic Toxicity Contains a known or suspected carcinogen.
Target Organ Effects Skin.
Aspiration Hazard No information available.

Numerical measures of toxicity Product Information

12. ECOLOGICAL INFORMATION

Ecotoxicity

Very toxic to aquatic life with long lasting effects.
The environmental impact of some components of this product have not been fully investigated.

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Iron 7439-89-6		96h LC50: = 13.6 mg/L (Morone saxatilis)		
Nickel 7440-02-0	72h EC50: = 0.18 mg/L (Pseudokirchneriella subcapitata) 96h EC50: 0.174 - 0.311 mg/L (Pseudokirchneriella subcapitata)	96h LC50: > 100 mg/L (Brachydanio rerio) 96h LC50: = 1.3 mg/L (Cyprinus carpio) 96h LC50: = 10.4 mg/L (Cyprinus carpio)		48h EC50: > 100 mg/L 48h EC50: = 1 mg/L
Zinc 7440-66-6	96h EC50: 0.11 - 0.271 mg/L (Pseudokirchneriella subcapitata) 72h EC50: 0.09 - 0.125 mg/L (Pseudokirchneriella subcapitata)	96h LC50: 2.16 - 3.05 mg/L (Pimephales promelas) 96h LC50: 0.211 - 0.269 mg/L (Pimephales promelas) 96h LC50: = 2.66 mg/L (Pimephales promelas) 96h LC50: = 30 mg/L (Cyprinus carpio) 96h LC50: = 0.45 mg/L (Cyprinus carpio) 96h LC50: = 7.8 mg/L (Cyprinus carpio) 96h LC50: = 3.5 mg/L (Lepomis macrochirus) 96h LC50: = 0.24 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.59 mg/L (Oncorhynchus mykiss) 96h LC50: = 0.41 mg/L (Oncorhynchus mykiss)		48h EC50: 0.139 - 0.908 mg/L

Persistence and Degradability

No information available.

Bioaccumulation

No information available

Other adverse effects

No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Disposal methods This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

Contaminated Packaging Dispose of contents/containers in accordance with local regulations.

Chemical Name	RCRA	RCRA - Basis for	RCRA - D Series	RCRA - U Series

		Listing	Wastes	Wastes
Nickel hydroxide 12054-48-7	(hazardous constituent - no waste number)			
Nickel 7440-02-0	(hazardous constituent - no waste number)	Included in waste streams: F006, F039		

California Hazardous Waste Codes 141

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste
Cobalt oxide 11104-61-3	Toxic
Manganese 7439-96-5	Ignitable powder
Nickel 7440-02-0	Toxic powder Ignitable powder
Zinc 7440-66-6	Ignitable powder Toxic

14. TRANSPORT INFORMATION

DOT NOT REGULATED

Proper Shipping Name NON REGULATED
Hazard Class N/A
Marine Pollutant This product contains a chemical which is listed as a severe marine pollutant according to DOT

TDG Not regulated
MEX Not regulated
CAO Not regulated
IATA Not regulated
Proper Shipping Name Not regulated
Hazard Class N/A

IMDG/IMO Not regulated
Hazard Class N/A
RID Not regulated
ADR Not regulated
AND Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA Complies
DSL All components are listed either on the DSL or NDSL.
TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

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	CAS No	Weight-%	SARA 313 - Threshold Values %
Nickel hydroxide - 12054-48-7	12054-48-7	29	0.1
Nickel - 7440-02-0	7440-02-0	7	0.1
Cobalt oxide - 11104-61-3	11104-61-3	2	0.1
Manganese -7439-96-5	7439-96-5	1.7	1.0
Zinc - 7440-66-6	7440-66-6	2.3	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	**Yes**
Chronic Health Hazard	**Yes**
Fire Hazard	**No**
Sudden release of pressure hazard	**No**
Reactive Hazard	**No**

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 hydroxide 12054-48-7		X		X
Nickel 7440-02-0		X	X	
Zinc 7440-66-6		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	Extremely Hazardous Substances RQs	RQ
Nickel hydroxide 12054-48-7	10 lb		RQ 10 lb final RQ RQ 4.54 kg final RQ
Nickel 7440-02-0	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ
Zinc 7440-66-6	1000 lb		RQ 454 kg final RQ RQ 1000 lb final RQ

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

Chemical Name	California Proposition 65
Nickel hydroxide - 12054-48-7	Carcinogen
Nickel - 7440-02-0	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Nickel hydroxide 12054-48-7	X	X	X	X	X
Nickel 7440-02-0	X	X	X	X	X
Cobalt oxide 11104-61-3			X	X	X
Manganese 7439-96-5	X	X	X	X	X
Zinc 7440-66-6	X	X	X	X	

International Regulations

Mexico

National occupational exposure limits

Component	Carcinogen Status	Exposure Limits
Nickel hydroxide 12054-48-7(29%)		Mexico: TWA= 0.1 mg/m^3 Mexico: STEL= 0.3 mg/m^3
Manganese 7439-96-5		Mexico: TWA 0.2 mg/m^3 Mexico: TWA 1 mg/m^3 Mexico: STEL 3 mg/m^3
Nickel 7440-02-0		Mexico: TWA 1 mg/m^3

Mexico - Occupational Exposure Limits - Carcinogens

Canada

WHMIS Hazard Class

D2A - Very toxic materials

16. OTHER INFORMATION

NFPA **Health Hazards** 1 **Flammability** 0 **Instability** 0 **Physical and Chemical Hazards** - **Personal Protection** X

MIS **Health Hazards** 1* **Flammability** 0 **Physical Hazard** 0

Chronic Hazard Star Legend * = Chronic Health Hazard

Prepared By SHENZHEN HL BATTERY CO.,LTD
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Revision Note

Disclaimer

The information provided in this 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