SAFETY DATA SHEET

For

SHENZHEN GREPOW BATTERY CO., LTD.

Complex building (1st to 3rd floor) 2nd building (1st to 4th floor), 1st building (1st to 4th floor) Shenzhen Grepow Battery Co., Ltd, Huarong Road Gaofeng Community, Dalang Street, Longhua District, SHENZHEN GUANGDONG 518110, CHINA

And for their product

NI-MH Battery

Model/type reference ..... : AA GREPOW Ni-MH 1.2V 1800mAh

Nominal Voltage ..... : 1.2V

Typical Capacity ..... : 1800mAh

Version number ..... : V2.0

Revision date ..... : 2020-12-18

Effective date ..... : 2021-01-01 ~ 2021-12-31

Prepared by ..... : **Shenzhen NTEK Testing Technology Co., Ltd.**
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Compiled by (name+ signature) ..: Hansa Zhang Hansa zhang

Approved by (+ signature) ..... : KK Yu KK YU

Section 1- Identification of the Substance/Preparation and of the Company/Undertaking

Product Identifier

Product Name: NI-MH Battery

Model No.: AA GREPOW Ni-MH 1.2V 1800mAh

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

Manufacturer's / Supplier Name: SHENZHEN GREPOW BATTERY CO., LTD

Address: Complex building (1st to 3rd floor) 2nd building (1st to 4th floor), 1st building (1st to 4th floor) Shenzhen Grepow Battery Co., Ltd, Huarong Road Gaofeng Community, Dalang Street, Longhua District, SHENZHEN GUANGDONG 518110, CHINA

Telephone number of the manufacturer/supplier: +86-18173503116

Emergency Telephone Number (24h): +86-18173503116

E-mail address: sn@grepow.com

Section 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

GHS Label elements, including precautionary statements

Emergency Overview

Signal word **Warning**

Hazard Statements

Suspected of causing cancer

Appearance Green **Physical State** Solid **Odor** Odorless

Precautionary Statements -	Obtain special instructions before use Do not handle until all safety precautions have been read and understood

Prevention	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.

Section 3 – Composition/Information on Ingredients

Chemical Name	CAS Number	Weight-%	Trade Secret
Nickelous hydroxide	12054-48-7	29.820	-
Cobalt hydroxide	21041-93-0	1.924	-
Nickel	7440-02-0	28.797	-
lanthanum	7439-91-0	10.858	-
Cerium	7440-45-1	1.551	-
Aluminium	7429-90-5	0.659	-
Poly[imino(1, 6-dioxo-1, 6-hexanediyl)imino-1, 6-hexanediyl]	32131-17-2	0.449	-
Manganese	7439-96-5	1.357	-
Iron	7439-89-6	14.568	-
Potassium hydroxide	1310-58-3	0.538	-
Sodium hydroxide	1310-73-2	2.160	-
Lithium hydroxide	1310-66-3	0.190	-
Copper	7440-50-8	4.955	-

Polypropylene	9003-07-0	1.957	-
Polyethylene	9002-88-4	0.217	-

* The exact percentage (concentration) of composition has been withheld as a trade secret.

Section 4 – First-aid Measures

General Advice	**First aid measures:** First aid is upon rupture of sealed battery. **Eye contact:** If symptoms persist, call a physician. Rinse thoroughly with plenty of water, also under the eyelids. **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.

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

firefighters	protective gear.

Section 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	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.

Section 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 containers tightly closed. **Incompatible Products:** None known based on information supplied.

Section 8 – Exposure Controls and Personal Protection

Control parameters

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Nickel 7440-02-0	TWA: 1.5 mg/m³	TWA: 1 mg/m³ (vacated) TWA: 1 mg/m³	IDLH: 10 mg/m³ TWA: 0.015 mg/m³
Nickel Hydroxide 12054-48-7	TWA: 0.2 mg/m³ Ni inhalable fraction	TWA: 1 mg/m³ Ni (vacated) TWA: 1 mg/m³ Ni	IDLH: 10 mg/m³ Ni TWA: 0.015 mg/m³ except Nickel carbonyl Ni
Mn 7439-96-5	TWA : 0.2 mg/m³	5 mg/m³ Ceiling (fume)	1 mg/m³ TWA (fume) , 500 mg/m³ IDLH
Potassium hydroxide 1310-58-3	TWA: 0.2 mg/m³	(vacated) Ceiling: 2mg/m³	Ceiling: 2 mg/m³

*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.

Section 9 - Physical and Chemical Properties

Physical Properties	**Physical state:** Solid		
	Appearance: Green and Cylinder		
	Color: Green		
	Odor: Odorless		
	Odor Threshold: No information available		
Chemical Properties:			
Property		**Values**	**Remarks/ Method**
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** **Lower flammability limit**		No data available 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	Insoluble in water	None known
Solubility in other solvents	No data available	None known
Partition coefficient: n-octanol/water	0.00001	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	0.00001	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	No data available

Section 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.

Section 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/m³ (Rat) 4h
Mn 7439-96-5	= 9 gm/kg (Rat)	500 mg/24H Mild	-
Nickel 7440-02-0	＞9000 mg/kg(Rat)	-	-
Iron 7439-89-6	=984mg/kg(Rat)	-	-
Potassium hydroxide 1310-58-3	= 214 gm/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 susceptible persons. **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 Hydroxide 21041-93-0	A3	Group 2B	-	X
Aluminum 7429-90-5	A4	Group 3	-	-
Nickel 7440-02-0	A5	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

Group 3 - Not Classifiable as to Carcinogenicity in 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

The following values are calculated based on chapter 3.1 of the GHS document.	**ATEmix (oral)** **ATEmix (inhalation-gas)** **ATEmix (inhalation-dust/mist)** **ATEmix (inhalation-vapor)**

Section 12 - Ecological Information

Ecotoxicity

The environmental impact of this product has 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

Persistence and Degradability	No information available.
Bioaccumulation	No information available
Other adverse effects	No information available.

Section 13 – Disposal Considerations

Waste treatment methods

Disposal methods: This material, as supplied, is not a hazardous waste according to Federal regulations (40CFR 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 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	(hazardous constituent – no waste number)	Included in waste streams: F006, F039	-	-
Nickel hydroxide 12054-48-7	(hazardous constituent - no waste number)	-	-	-

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 Hydroxide 21041-93-0	Toxic
Nickel 7440-02-0	Toxic powder Ignitable powder

Section 14 – Transport Information

Air transport:

The NI-MH Battery according to Special Provision A199 of IATA DGR 62nd edition for transportation. The requirement for shipping these batteries by ICAO and IATA is Special Provision A199 which states:

“The UN number UN3496 is only applicable in sea transport. Nickel-metal hydride batteries or nickel-metal hydride battery-powered devices, equipment or vehicles having the potential of a dangerous evolution of heat are not subject to these Regulations provided they are prepared for transport so as to prevent:

(a) a short circuit (e.g. in the case of batteries, by the effective insulation of exposed terminals; or, in the case of equipment, by disconnection of the battery and protection of exposed terminals); and

(b) unintentional activation.

The words “Not Restricted” and the Special Provision number must be included in the description of the substance on the Air Waybill as required by 8.2.6, when an Air Waybill is issued.”

Sea transport:

The NI-MH Battery according to Special Provision 963 of IMDG Code 39-18 edition for sea transportation.

UN No.: UN3496

Proper Shipping Name (PSN): BATTERIES, NICKEL-METAL HYDRIDE

Class or division: 9

Special provisions: 117 and 963

The requirement for shipping these batteries by IMO is Special Provision 963 which states:

"Nickel-metal hydride button cells or nickel-metal hydride cells or batteries packed with or contained in equipment are not subject to the provisions of this Code.

All other nickel-metal hydride cells or batteries shall be securely packed and protected from short circuit. They are not subject to other provisions of this Code provided that they are loaded in a cargo transport unit in a total quantity of less than 100 kg gross mass. When loaded in a cargo transport unit in a total quantity of 100 kg gross mass or more, they are not subject to other provisions of this Code except those of 5.4.1, 5.4.3 and column 16 of the Dangerous Goods List in chapter 3.2."

With regard to transport, the following regulations are cited and considered:

- The International Civil Aviation Organization (ICAO) Technical Instructions.
- The International Air transport Association (IATA) Dangerous Goods Regulations.
- The International Maritime Dangerous Goods (IMDG) Code.
- The US Hazardous Materials Regulation (HMR) pursuant to a final rule issued by RSPA
- The Office of Hazardous Materials Safety within the US Department of Transportations' (DOT)
- Research and Special Programs Administration (RSPA)

Transport Fashion: By air, by sea, by railway, by road.

Section 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	29.8	0.1
Cobalt Hydroxide	21041-93-0	1.924	0.1
Nickel	7440-02-0	26.2	0.1

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	-

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

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
Cobalt Hydroxide 21041-93-0	-	-	X	X	X
Nickel 7440-02-0	X	X	X	X	X

International Regulations

Mexico

National occupational exposure limits

Component	Carcinogen Status	Exposure Limits
Nickel hydroxide 12054-48-7(29.820%)	-	Mexico: TWA= 0.1 mg/m³ Mexico: STEL= 0.3 mg/m³
Nickel 7440-02-0 (28.797%)	-	Mexico: TWA= 0.1 mg/m³ Mexico: STEL= 0.3 mg/m³

Mexico - Occupational Exposure Limits - Carcinogens

Canada

WHMIS Hazard Class

2A- Very toxic materials.

Section 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**	-	-	-

Revision Date: 18-December-2020

Revision Note: No information available

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--