

Gloso HK has prepared copyrighted Product Safety Datasheets to provide information on the different battery systems. Batteries are articles as defined under the GHS and exempt from GHS classification criteria (Section 1.3.2.1.1 of the GHS). The information and recommendations set forth herein are made in good faith, for information only, and are believed to be accurate as of the date of preparation. However, GLOSO HK INDUSTRIES LTD. MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, WITH RESPECT TO THIS INFORMATION AND DISCLAIMS ALL LIABILITY FROM REFERENCE ON IT.

MATERIAL SAFETY DATA SHEET FOR NOVACELL NICKEL METAL HYDRIDE BATTERIES

1. Substance/preparation and company name

NOVACELL Nickel Metal Hydride Batteries – 1.2V

Company: Gloso HK Industries Ltd.

Address: Flat D,7/F.,Blk. 2,Golden Dragon Ind.

Ctr.,162-170 Tai Lin Pai Rd.,Kwai Chung, N.T.,HK

Emergency Telephone number: +852-2690-0808

Recommended Use: For all electrical devices

Restrictions on use: Based on using condition

2. Hazards Identification

GHS classification: N/A

Signal Word: N/A

Hazard Classification: N/A

Under normal conditions of use, the battery is hermetically sealed.

Ingestion: Swallowing a battery can be harmful. Contents of an open battery can cause serious chemical burns of mouth, esophagus, and gastrointestinal tract.

Inhalation: Contents of an open battery can cause respiratory irritation. Hypersensitivity to nickel can cause allergic pulmonary asthma.

Skin Contact: Contents of an open battery can cause skin irritation and/or chemical burns. Nickel, nickel compounds, cobalt and cobalt compounds can cause skin sensitization and an allergic contact dermatitis.

Eye Contact: Contents of an open battery can cause severe irritation and chemical burns.

Note: Nickel, nickel compounds, cobalt and cobalt compounds are listed as possible carcinogens by the International Agency for Research on Cancer (IARC) or National Toxicology Program (NTP).

3. Ingredients

IMPORTANT NOTE: The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful.

MATERIAL OR INGREDIENT	PEL (OSHA)	TLV (ACGIH)	%/wt.
Aluminum (CAS#7429-90-5)	15 mg/m ³ TWA (total dust) 5 mg/m ³ TWA (respirable fraction)	10 mg/m ³ TWA	<2

Cobalt as cobalt metal (CAS# 7440-48-4) as cobalt oxide (CAS# 1307-96-6) as cobalt hydroxide (CAS# 21041-93-0)	0.1 mg/m ³ TWA (as Co)	0.02 mg/m ³ TWA (as Co)	2.5-6.0
Lithium Hydroxide (CAS# 1310-65-2)	None established	None established	0-4
Manganese (CAS# 7439-96-5)	5 mg/m ³ Ceiling	0.2 mg/m ³ TWA (as Mn)	<3
Potassium Hydroxide (CAS# 1310-58-3)	None established	2 mg/m ³ Ceiling	<7
Sodium Hydroxide (CAS# 1310-73-2)	2 mg/m ³ TWA	2 mg/m ³ Ceiling	0-4
Mischmetal Including: Lanthanum (CAS# 7439-91-0) Cerium (CAS# 7440-45-1) Neodymium (CAS# 7440-00-8) Praseodymium (CAS# 7440-10-0)	15 mg/m ³ TWA (particulates not otherwise regulated-total dust) 5 mg/m ³ TWA (particulates not otherwise regulated respirable - fraction)	10 mg/m ³ TWA (particulates no otherwise classified - inhalable) 3 mg/m ³ TWA (particulates not otherwise classified- respirable)	<13
Nickel as nickel hydroxide (CAS# 12054-48-7) as nickel oxide (CAS# 1313-99-1) as nickel powder (CAS# 7440-02-0)	1 mg/m ³ TWA (as Ni)	1.5 mg/m ³ TWA (as inhalable Ni) 0.2 mg/m ³ TWA (as inhalable Ni, insoluble compounds)	30-50
Zinc as zinc metal (CAS# 7440-66-6) as zinc oxide (CAS# 1314-13-2) as zinc hydroxide (CAS# 20427-58-1)	15 mg/m ³ TWA (total dust: zinc oxide) 5 mg/m ³ TWA (respirable fraction: zinc oxide)	10 mg/m ³ TWA (total dust: zinc oxide)	<3

Non-Hazardous Components			
Steel (iron CAS# 7439-89-6)	None established	None established	14-18
Water, Paper, Plastic and Other	None established	None established	Balance

4. First aid measures

Ingestion: Do not induce vomiting or give food or drink. Seek medical attention immediately.

Inhalation: Provide fresh air and seek medical attention.

Skin Contact: Remove contaminated clothing and wash skin with soap and water. If a chemical burn occurs or if irritation persists, seek medical attention.

Eye Contact: Immediately flush eyes thoroughly with water for at least 15 minutes, lifting upper and lower lids, until no evidence of the chemical remains. Seek medical attention.

5. Fire fighting measures

If fire or explosion occurs when batteries are on charge, shut off power to charger.

In case of fire where nickel metal hydride batteries are present, apply a smothering agent such as METL-X, sand, dry ground dolomite, or soda ash, or flood the area with water. A smothering agent will extinguish burning nickel metal hydride batteries. Water may not extinguish burning batteries but will cool the adjacent batteries and control the spread of fire. Burning batteries will burn themselves out. Virtually all fires involving nickel metal hydride batteries can be controlled with water. When water is used, however, hydrogen gas may evolve. In a confined space, hydrogen gas can form an explosive mixture. In this situation, smothering agents are recommended.

Fire fighters should wear self-contained breathing apparatus. Burning nickel metal hydride batteries can produce toxic fumes including oxides of nickel, cobalt, aluminum, manganese, lanthanum, cerium, neodymium, and praseodymium.

6. Accidental release measures

To cleanup leaking batteries:

Ventilation Requirements: Room ventilation may be required in areas where there are open or leaking batteries.

Eye Protection: Wear safety glasses with side shields if handling an open or leaking battery.

Gloves: Use neoprene or natural rubber gloves if handling an open or leaking battery. Battery materials should be collected in a leak-proof container.

7. Handling and storage

Storage: Store in a cool, well ventilated area. Elevated temperatures can result in shortened battery life.

Mechanical Containment: If potting or sealing the battery in an airtight or watertight container is required, consult your Gloso HK Industries Ltd. representative for precautionary suggestions. Batteries normally evolve hydrogen which, when combined with oxygen from the air, can produce a combustible or explosive mixture unless vented. If such a mixture is present, short circuits, high temperature, or static sparks can cause an ignition.

Do not obstruct safety release vents on batteries. Encapsulation (potting) of batteries will not allow cell venting and can cause high pressure rupture.

Handling: Accidental short circuit for a few seconds will not seriously affect the battery. Prolonged short circuit will cause the battery to lose energy, and can cause the safety release vent to open. Sources of short circuits include jumbled batteries in bulk containers, metal jewelry, metal covered tables or metal belts used for assembly of batteries into devices.

If soldering or welding to the battery is required, consult your Gloso HK Industries Ltd. representative for proper precautions to prevent seal damage or short circuit.

Do not open battery. The negative electrode material may be pyrophoric. Should an individual cell from a battery become disassembled, spontaneous combustion of the negative electrode is possible. This is much more likely to happen if the electrode is removed from its metal container. There can be a delay between exposure to air and spontaneous combustion.

Charging: This battery is made to be charged many times. Because it gradually loses its charge over a few months, it is good practice to charge battery before use. Use recommended charger. Improper charging can cause heat damage or even high pressure rupture. Observe proper charging polarity.

Labeling: If the NOVACELL Battery label or package warnings are not visible, it is important to provide a package and/or device label stating:

WARNING: CHARGE ONLY WITH SPECIFIED CHARGERS ACCORDING TO DEVICE MANUFACTURER'S INSTRUCTIONS. DO NOT OPEN BATTERY, DISPOSE OF IN FIRE OR SHORT CIRCUIT – MAY IGNITE, EXPLODE, LEAK OR GET HOT CAUSING PERSONAL INJURY.

Where accidental ingestion of small batteries is possible, the label should state:

WARNING:

- (1) KEEP AWAY FROM SMALL CHILDREN. IF SWALLOWED, PROMPTLY SEE SOCTOR.
- (2) CHARGE ONLY WITH SPECIFIED CHARGERS ACCORDING TO DEVICE MANUFACTURER'S INSTRUCTIONS. DO NOT OPEN BATTERY, DISPOSE OF IN FIRE OR SHORT CIRCUIT – MAY IGNITE, EXPLODE, LEAK OR GET HOT

CAUSING PERSONAL INJURY.

8. Exposure controls and personal protection

Ventilation Requirements: Not necessary under normal conditions.

Respiratory Protection: Not necessary under normal conditions.

Eye Protection: Not necessary under normal conditions.

Gloves: Not necessary under normal conditions.

9. Physical and chemical properties

Appearance (physical state, color, etc.)	Solid object
Upper Explosive Limits	Not applicable for an Article
Lower Explosive Limits	Not applicable for an Article
Odor	No odor
Vapor Pressure (mm Hg @ 25°C)	Not applicable for an Article
Odor Threshold	No odor
Vapor Density (Air = 1)	Not applicable for an Article
pH	Not applicable for an Article
Density (g/cm ³)	2.5-3.7
Melting point/Freezing Point	Not applicable for an Article
Solubility in Water (% by weight)	Not applicable for an Article
Boiling Point @ 760 mm Hg (°C)	Not applicable for an Article
Flash Point	Not applicable for an Article
Evaporation Rate (Butyl Acetate = 1)	Not applicable for an Article
Flammability	Not applicable for an Article
Partition Coefficient	Not applicable for an Article
Auto-ignition Temperature	Not applicable for an Article
Decomposition Temperature	Not applicable for an Article
Viscosity	Not applicable for an Article

10. Stability and reactivity

Nickel metal hydride batteries do not meet any of the criteria established in 40 CFR 261.2 for reactivity.

11. Toxicological information

Under normal conditions of use, nickel metal hydride batteries are non-toxic.

12. Ecological information

Issues such as ecotoxicity, persistence and bioaccumulation are not applicable for articles.

13. Disposal considerations

Dispose of in accordance with all applicable federal, state and local regulations. Appropriate disposal technologies include incineration and land filling. Nickel metal hydride batteries can also be collected as part of the Rechargeable Battery Recycling Corporation (RBRC) program.

14. Transport information

In general, all batteries in all forms of transportation (ground, air, or ocean) must be packaged in a safe and responsible manner. Regulatory concerns from all agencies for safe packaging require that batteries be packaged in a manner that prevents short circuits and be contained in "strong outer packaging" that prevents spillage of contents. All original packaging for NOVACELL nickel metal hydride batteries has been designed to be compliant with these regulatory concerns.

NOVACELL nickel metal hydride batteries (sometimes referred to as "Dry cell" batteries) are not defined as dangerous goods under the IATA Dangerous Goods Regulations, ICAO Technical Instructions and the U.S. hazardous materials regulations (49 CFR). Nickel metal hydride batteries are defined as dangerous goods under the IMDG code. For air and ground transportation, these batteries are not subject to the dangerous goods regulations as they are compliant with the requirements contained in the following special provisions.

Regulatory Body	Special Provisions
ADR	295 – 304, 598
IMDG	UN3496 SP 963
UN	UN 3028 Provisions 295 - 304
US DOT	49 CFR 172.102 Provision 130
IATA	A123, A199
ICAO	UN 3028 Provisions 295-304

In addition, the IATA Dangerous Goods Regulations and ICAO Technical Instructions require the words "not restricted" and the Special Provision number A123 be provided on the air waybill, when an air waybill is issued.

15. Regulatory information

Batteries marketed by Gloso HK Industries Ltd. are not classified as dangerous goods by the US Department of Transportation or the major international regulatory bodies and are therefore not regulated.

SARA/TITLE III - As an article, this battery and its contents are not subject to the requirements of the Emergency Planning and Community Right-To- Know



Gloso HK Industries Ltd.

景欣香港實業有限公司

Flat D,7/F.,Blk. 2,Golden Dragon Ind'l Ctr.,162-170 Tai Lin Pai Rd.,Kwai Chung, N.T., H.K.

Tel : (852) 2690 0808

香港新界葵涌大連排道 162-170 號金龍工業中心第 2 座 7 樓D 室

Fax : (852) 2690 0230

Website : <http://www.novacell.com.hk>

E-mail : sales@gloso.com.hk

Act.

16. OTHER INFORMATION

Date Prepared: January 2020