



As a courtesy to our customers, Gloso HK has prepared copyrighted Product Safety Datasheets to provide information on the different NOVACELL battery systems. As defined in OSHA Hazard Communication Standard, Section 1910.1200 (c), NOVACELL batteries are manufactured "articles", which do not result in exposure to a hazardous chemical under normal conditions of use. For this reason, Material Safety Datasheets are not required. 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 BATTERIES

1. Substance/preparation and company name

Novacell Mercury Free Green Button Cells – 1.5V
NV-LR41H, NV-LR44H, NV-LR1130H

Company: Gloso HK Industries Ltd.

Address: Flat G, 12/F., Selwyn Factory Building,
404 Kwun Tong Road, Kwun Tong, Kowloon, HK

Emergency Telephone number: +852-2690-0808

Recommended Use: For all electrical devices

Restrictions on use: Based on using condition

2. Hazards Identification

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.

Skin Contact: Contents of an open battery can cause skin irritation and/or chemical burns.

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

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	CAS #	EC#	Content(%/wt.)
Manganese Dioxide	1313-13-9	215-202-6	22.20
Graphite	7782-42-5	231-955-3	3.60
Mercury	7439-97-6	231-106-7	<0.0001
Potassium Hydroxide	1310-58-3	231-119-8	8.60
Zinc	7440-66-6	231-175-3	8.80
Cadmium	7440-43-9	231-152-8	<0.0005
Lead	7439-92-1	231-100-4	<0.001
Iron	7439-89-6	231-096-4	56.80

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

In case of fire, it is permissible to use any class of extinguishing medium on these batteries or their packing material. Cool exterior of batteries if exposed to fire to prevent rupture.

Fire fighters should wear self-contained breathing apparatus.

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

Handling

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.

Charging: This battery is manufactured in a charged state. It is not designed for recharging. Recharging can cause battery leakage or, in some cases, high pressure rupture. Inadvertent charging can occur if a battery is installed backwards.

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: do not install backwards, charge, put in fire, or mix with other battery types. May explode or leak causing injury.

Replace all batteries at the same time.

Where accidental ingestion of small batteries is possible, the label should include: Keep away from small children. If swallowed, promptly see doctor.

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

Form and Colour: Copper top battery. Contents dark in colour.

Odour: Not applicable

Change in physical state

Melting point/melting range: Not available

Boiling point/boiling range: Not available

Flash point: Not applicable

Explosion limits: Not available

Ignition temperature: Not available

Vapour pressure: Not available

Specific Gravity: Not applicable

% Volatiles: Not available

Solubility in water: Not applicable

Solubility in other solvents: Not applicable

pH value: Not available

Octanol/water partition coefficient (log POW): Not available

Viscosity: Not available



10. Stability and reactivity

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

11. Toxicological information

Mercury Free Button Cells are not hazardous waste. Under normal conditions of use, Mercury Free Button Cells 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.

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 Mercury Free Button Cells has been designed to be compliant with these regulatory concerns. Mercury Free Button Cells (sometimes referred to as "Dry cell" batteries) are not listed as dangerous goods under the IATA Dangerous Goods Regulations, ICAO Technical Instructions and the U.S. hazardous materials regulations (49 CFR). These batteries are not subject to the dangerous goods regulations provided they meet the requirements contained in the following special provisions.

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

All NOVACELL Mercury Free Button Cells are packed in such a way to prevent short circuits or the generation dangerous quantities of heat and meet the special provisions listed above. 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.



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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 Act.

16. OTHER INFORMATION

Date Prepared: January 2015