SAFETY DATA SHEET (SDS)

Secondary Nickel-Metal Hydride Sealed Cells

Date: 2022-1-5

According to Appendix D, OSHA Hazard Communication Standard 29 CFR §1910.1200

Section 1: IDENTIFICATION

1.1 Product Identification

Sealed rechargeable Cells
Trade name and model; All types in steel container.
IEC designation: HR…. According IEC 285
Electrochemical system: Nickel/Metal hydride, alkaline electrolyte

Electrodes:
Positive: Nickel hydroxide
Negative: metal hydride
Electrolyte: Potassium hydroxide water solution.
Nominal voltage: 1.2 Volts

1.2 Supplier

Name: Union Suppo Battery (Liaoning) Co., Ltd.

Address: No. 751, Anqian Road, Lishan District, Anshan, Liaoning, 114051, China

Tel/Fax: +86-412-2516890/86--412-2516886

Emergency contact: SUPPO local dealer.

Section 2: HAZARDS IDENTIFICATION

Classification

The batteries are hermitically sealed articles under normal conditions of use. The products referenced herein are exempt articles and are not subject to OSHA's Hazard Communication Standard requirements for preparation of safety data sheets. This information is provided as a service to our customers.

GHS Label elements, including precautionary statements

Emergency Overview

Signal word **Danger**

Hazard Statements

The battery should not be opened or burned. Exposure to the ingredients contained within or their combustion products could be harmful. If the battery is opened or broken then the following hazards apply:

Appearance Silver/green **Physical State** Solid **Odor** Mild

Precautionary Statements - Prevention

ROUTES OF ENTRY:

EYE CONTACT: Contact with the potassium (battery electrolyte) can cause severe irritation, burns, and cornea damage upon contact.

SKIN CONTACT: potassium (battery electrolyte) can cause severe irritation, burns and ulceration.

SKIN ABSORPTION: Not a significant route of entry.

INHALATION: Potassium mist generated during battery charging or spillage of the electrolyte in a confined area may cause respiratory irritation.

INGESTION: The potassium (battery electrolyte) ingestion irritates the mouth and the throat seriously resulting in serious burns to the mouth and gastrointestinal tract.

ACUTE HEALTH EFFECTS:

Exposure and/or contact with potassium (battery electrolyte) may lead to acute irritation of the skin, corneal damage of the eyes, and irritation of the mucous membranes of the eyes and upper respiratory system, including lung.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

A knowledge of the available toxicology information and of the physical and chemical properties of the material suggests that overexposure in unlikely to aggravate existing medical conditions.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Medium single cell with steel container

CAS Number	Metals %	Percent %
12054-48-7	Nickel hydroxide	34.9
7440-02-0	Nickel	23
7439-89-6	Iron	27
7440-48-4	Cobalt	1
9003-07-0	Polypropylene	3.5
9002-88-4	Polyethylene	0.4
9002-86-2	PVC(Chloroethylene, polymer)	0.7
7440-09-7	Potassium	2.5
7732-18-5	Water	7

Section 4: FIRST-AID MEASURES

In case of electrolyte leakage precautions must be taken to avoid personal to get in direct contact with it. If it accidentally happens following must be done:

4.1 Inhalation

Fresh air. Rinse mouth and nose with water. Medical treatment.

4.2 Skin contact

Rinse immediately with plenty of water. Medical treatment.

4.3 Eyes contact

Rinse immediately with plenty of water during at least 15-30 min. Immediately hospital treatment. Eye specialist.

4.4 Ingestion

If the injured is fully conscious: plenty of drink, preferably milk. Do not induce vomiting.
Immediate Hospital treatment.

Section 5: FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable: Class D-Dry chemical, sand.
Not to be used: Water.

5.2 Special exposure hazards

Cells can be overheated by an external source or by internal shorting and develop potassium hydroxide mist and/or hydrogen gas. In fire situations fumes containing. Nickel, cobalt and

iron may evolved.

5.3 Special protective equipment

Use self-contained breathing apparatus and full fire-fighting protective clothing.

Section 6: ACCIDENTAL RELEASE MEASURES

6.1 Spill or leak:

Battery cell is sealed against electrolyte loss. Under normal handling, spillage of alkali electrolyte will not occur. However, battery may emit electrolyte or hydrogen as if charging or discharging rates exceed manufacturer's recommendations or if battery has been breached.

6.2 Personal precaution

Use personal protection recommended in Section 8.

6.3 Methods for Containment: Move battery to well ventilated area to prevent hydrogen gas accumulation. If electrolyte leaks or spills, neutralize with a weak acid such as vinegar or citric before proper disposal. Dispose in accordance with applicable local, state and federal regulations.

Section 7: HANLING AND STORAGE

No hazards during handling, no electrolyte can pour out of the sealed NI-MH cells.

Storage following SUPPO specifications: +5 to +25℃ in a 65 +- 5% relative humidity.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Exposure Guideline

Common chemical name/General name	ACGIH(2005)	
	TLVTWA	BEI
Nickel, Nickel hydroxide	(As Ni) Metal: 1.5mg/m^3	-
Cobalt	(As Co) 0.02mg/ m^3	In blood: I micro g/l
Potassium	-	-

8.2 Engineering Controls:

Avoid charging batteries in areas where hydrogen gas can accumulate. Use local exhaust ventilation to maintain concentrations of hydrogen below the lower Explosive Limit (L.E.L). Consult a qualified ventilation professional regarding the proper methods to collect and transport flammable gases in ventilation systems. Insure proper ventilation is present during battery disassembly to control occupation exposure to battery component particulate and

electrolyte mist and vapor.

8.3 Eye/Face Protection

Wear ANSI approved safety glasses with side shields during normal use. Wear OSHA approved face shield with safety glasses during intentional disassembly.

8.4 Skin Protection: Wear nitrile butyl rubber, neoprene, or PVC gloves and protective clothing during battery component disassembly. Discard contaminated work clothing after one work day.

8.5 Respiratory protection:

None required during normal use. Use appropriate NIOSH approved respirator if airborne dust or mist concentrations exceed the PEL or TLV during intentional disassembly.

8.6 General Hygiene Considerations

Practice good housekeeping and personal hygiene procedures. Do not smoke in the area where batteries are being charged, stored or tested. Wear proper personal protective equipment during battery charging and disassembly operations.

8.7 Other Equipment:

Safely showers and eyewash stations should be present in work area.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Appearance

Physical shape and colour as supplied.

9.2 Temperature range

Continuous: +5 to +25℃ .

Occasional: -40 to +50℃.

9.3 Specific energy

65 to 75 Wh/Kg

Note: Wh=Nominal voltage x rated Ah as defined in IEC standard.

Kg: Average battery weight in Kg.

9.4 Specific instant power

About: 1500 W/Kg

Note: w= 0.5 x nominal voltage x Ip

With Ip= current in Amperes delivered by a fully charged battery for half the nominal Voltage at one second.

Rg= Average battery weight in Kg.

9.5 Mechanical resistance

As defined in relevant IEC standard.

Section 10: STABILITY AND REACTIVITY

10.1 Conditions

Temperature over 85℃. Internal shortage. Melting of gasket and rubber of vent.

10.2 Hazardous decomposition products

Nickel compounds, Cobalt compounds, Caustic liquid.

Section 11: TOXICOLOGICAL INFORMATION

Nickel hydroxide LD50/oral/rat: 1600 mg/Kg
Potassium hydroxide Ld50/oral/rat: 365 mg/Kg
Cobalt hydroxide LD50. Not available

Section 12: ECOLOGICAL INFORMATION

Ni-MH cells contain no cadmium, no mercury, no lead and no toxic metals.

Section 13: DISPOSAL CONSIDERATIONS

13.1 Incineration.

Never incinerate NI-MH batteries.

13.2 Landfill

Never dispose NI-MH batteries as landfill.

13.3 Recycling

NI-MH batteries can be recycled.

13.4 Additional information

Dispose in accordance with all applicable federal, state and local regulations.
Nickel Metal Hydride batteries- which in some countries may not be subject to collection & recycling and/or disposal requirements- do however contain recyclable materials and SUPPO recommends proper recycling of these batteries whenever possible.

You may refer to the following web page for further information and guidance:
www.collectnicad.org(1)

You can also contact SUPPO.

(1) This page provides links to different National Battery Associations and National Collection & recycling Organizations that can provide you with the latest update on collection &recycling in their respective CO

Section 14: TRANSPORT INFORMATION

Sealed Ni-MH batteries don't require specific transport obligations. SP963 Nickel-metal hydride button cells or nickel-metal hydride cells or batteries packed with or contained in equipment are not subject to the provisions total quantity gross mass less than 100 kgs (battery gross tons per container) only.

Section 15: REGULATORY INFORMATION

10.3SARA 313 information

As an article, this battery and its contents are not subject to the requirements of Section 313 of the Emergency & community Right-to Know Act of 1986.

Section 16: OTHER INFORMATION

The data in this Product Safety Data Sheet relate to only specific designated herein and do not relate to use in combination with any other material or in any process. The information set forth herein is based on the present state of knowledge and current legislation. Any use of this data or information must be determined by the user to be in accordance with federal, state, local laws and regulation.

Union Suppo Battery (Liaoning) Co., Ltd.