Material Safety Data Sheet for NiMH Batteries

Used with DeVilbiss VacuAide 7310 device

GP Batteries

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IDENTITY (As Used on Label and List) Nickel Metal Hydride Battery	Note: Blank spaces are not permitted if any item is not applicable or no information is available, the space must be marked to indicate that.

Section I – Information of Manufacturer

Manufacturer's Name GPI International Ltd.	Emergency Telephone Number Within USA & Canada call: +1-800-424-9300 Outside USA and Canada call: +1-703-527-3887
Address (Number, Street, City State, and ZIP Code) 8/F GP Building, 30 Kwai Wing Road,	Telephone Number for information 852-2484-3333
Kwai Chung, N.T. H.K.	Date of prepared and revision 5th January 2015
	Signature of Preparer (optional)

Section II - Hazardous Ingredients / Identity Information

Hazardous Components:

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A) The content of elements are based on homogeneous materials level of NiMH battery:

Element	Lead	Cadmium	Hexavalent Chromium (Cr^{6+})	Mercury	Polybrominated Biphenyls (PBBs)	Polybrominated Diphenyls Ethers (PBDEs)
Limit (mg/kg)	<1000	<100	<1000	<1000	<1000	<1000
CAS no.	7439-92-1	7440-43-9	18540-29-9	7439-97-6	59536-65-1	---

B) The content of elements are based on total weight of NiMH battery:

Element	Lead	Cadmium	Hexavalent Chromium (Cr^{6+})	Mercury	Polybrominated Biphenyls (PBBs)	Polybrominated Diphenyl Ethers (PBDEs)
Limit (mg/kg)	<40	<20	<5	<5	Nil	Nil

Element	Limit (wt%)	CAS no.
Aluminum	< 2	(CAS# 7429-90-5)
Cobalt	2.5-6.0	as cobalt metal(CAS# 7440-48-4); as cobalt oxide(CAS# 1307-96-6); as cobalt hydroxide (CAS# 21041-93-0)
Lithium Hydroxide	0-4	(CAS# 1310-65-2)
Manganese	0-4	(CAS# 7439-96-5)
Mischmetal	<13	Lanthanum (CAS# 7439-91-0); Cerium (CAS# 7440-45-1); Neodymium (CAS# 7440-00-8); Praseodymium (CAS# 7440-10-0)
Nickel	35-55	as nickel hydroxide (CAS# 12054-48-7); as nickel oxide (CAS# 1313-99-1) as nickel powder (CAS# 7440-02-0
Potassium Hydroxide	<7	(CAS# 1310-58-3)
Sodium Hydroxide	0-4	(CAS# 1310-73-2
Zinc	<3	as zinc metal (CAS# 7440-66-6); as zinc oxide (CAS# 1314-13-2) as zinc hydroxide (CAS# 20427-58-1)
Non-Hazardous Components	14-18	Steel (iron CAS# 7439-89-6)Water, Paper, Plastic and Other

Section III - Physical / Chemical Characteristics

Boiling Point N.A.	Specific Gravity (H_2O=1) N.A.
Vapor Pressure (mm Hg) N.A.	Melting Point N.A.
Vapor Density (AIR=1) N.A.	Evaporation Rate (Butyl Acetate) N.A.
Solubility in Water N.A.	
Appearance and Odor Cylindrical Shape, odorless	

Section IV – Hazard Classification

Classification

N.A.

Section V – Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	X	

Incompatibility (Materials to Avoid)

Hazardous Decomposition or Byproducts

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	

Section VI - Health Hazard Data

Route(s) of Entry	Inhalation?	Skin?	Ingestion?
	N.A.	N.A.	N.A.

Health Hazard (Acute and Chronic) / Toxiclogical information

In case of electrolyte leakage, skin will be itchy when contaminated with electrolyte.

In contact with electrolyte can cause severe irritation and chemical burns.

Inhalation of electrolyte vapors may cause irritation of the upper respiratory tract and lungs.

Section VII – First Aid Measures

First Aid Procedures

If electrolyte leakage occurs and makes contact with skin, wash with plenty of water immediately.

If electrolyte comes into contact with eyes, wash with copious amounts of water for fifteen (15) minutes, and contact a physician.

If electrolyte vapors are inhaled, provide fresh air and seek medical attention if respiratory irritation develops. Ventilate the contaminated area.

Section VIII - Fire and Explosion Hazard Data

Flash Point (Method Used)	Ignition Temp.	Flammable Limits	LEL	UEL
N.A.	N.A.	N.A.	N.A.	N.A.

Extinguishing Media

Carbon Dioxide, Dry Chemical or Foam extinguishers can be used for battery BUT water extinguisher is not suitable.

Special Fire Fighting Procedures

N.A.

Unusual Fire and Explosion Hazards

Do not dispose of battery in fire - may explode.

Do not short-circuit battery - may cause burns.

Section IX – Accidental Release or Spillage

Steps to Be Taken in Case Material is Released or Spilled

Batteries that are leakage should be handled with rubber gloves.

Avoid direct contact with electrolyte.

Wear protective clothing and a positive pressure Self-Contained Breathing Apparatus (SCBA).

Section X – Handling and Storage

Safe handling and storage advice

Batteries should be handled and stored carefully to avoid short circuits.

Do not store in disorderly fashion, or allow metal objects to be mixed with stored batteries.

Never disassemble a battery.

Do not breathe cell vapors or touch internal material with bare hands.

The cells and batteries shall not be stored in high temperature ,the maximum temperature allowed is 60℃ for a short period during the shipment , Otherwise the cells maybe leakage and can result in shortened cycle life.

Section XI – Exposure Controls / Person Protection

Occupational Exposure Limits: LTEP N.A.		STEP N.A.
Respiratory Protection (Specify Type) N.A.		
Ventilation	Local Exhausts N.A.	Special N.A.
	Mechanical (General) N.A.	Other N.A.
Protective Gloves N.A.		Eye Protection N.A.
Other Protective Clothing or Equipment N.A.		
Work / Hygienic Practices N.A.		

Section XII – Ecological Information

N.A.

Section XIII – Disposal Method

Dispose of batteries according to government regulations.

Section XIV – Transportation Information

a) 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 GP nickel metal hydride batteries has been designed to be compliant with these regulatory concerns.

GP nickel metal hydride batteries (sometimes referred to as "Dry cell" batteries) are not defined as dangerous goods under the IATA Dangerous Goods Regulations 56th edition 2015. ICAO Technical Instructions and the U.S. hazardous materials regulations(49 CFR). These batteries are not subject to the dangerous goods regulations as they are compliant withthe requirements contained in the following special provisions.

Regulatory Body	Special Provisions
ADR	295 – 304, 598
IMO	UN 3496 SP117 and SP963
UN	UN 3496
US DOT	49 CFR 172, 102 Provision 130
IATA	A199

In addition, the IATA Dangerous Goods Regulations and ICAO Technical Instructions require the words "not restricted" and the Special Provision number A199 be provided on the air waybill, when an air waybill is issued.

b) International Maritime Organization (IMO) IMDG Code regulated these products as UN 3496 BATTERIES, NICKEL METAL HYDRIDE, class 9 dangerous goods with Special Provision 117 and 963 assigned

SP117
Only regulated when transported by sea.

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 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 good list in Chapter 3.2.

The requirements of these sections are:
(1) dangerous goods transport documentation to accompany the shipment,
(2) the shipment must be described as "UN3496, BATTERIES, NICKEL-METAL HYDRIDE, CLASS 9" on the shipper's declaration for dangerous goods.
(3) the dangerous goods description must also be entered on the Dangerous Cargo Manifest and/or the detailed stowage plan in compliance with the IMDG Code requirements for shipboard documentation.

Section XV – Regulatory Information

Special requirement be according to the local regulatories.

Section XVI – Other Information

The data in this Material Safety Data Sheet relates only to the specific material designated herein.

Section XVII – Measures for fire extinction

In case of fire, it is permissible to use Carbon Dioxide, Dry Chemical or Foam extinguishers 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.