MSDS

(Posted 9/25/2012)

The attached MSDS sheets supersede all other MSDS sheets. Please file accordingly.

VENDOR: **TerraLUX A923**

STOCK#	MFG# DESCRIPTION
G36-472	TLF-NFSTC-OR INFINISTARCR RECHARGEABLE LED FLASHLIGHT

MATERIAL SAFETY DATA SHEET

Hi-Watt Battery Industry Company Ltd.
No. 21 , Tung Yuen Street , Yau Tong Bay , Kowloon , Hong Kong .
Telephone Number for Information : 852- 2348 0111
Telefax Number : 852- 2772 7703

Date : July. 01. 2011

Section 1 : Product Identification

Product Name	:	Nickel Metal Hydride Battery
Chemical Systems	:	Nickel Metal Hydride
Nominal Voltage	:	1.2V
Designed for Recharge	:	Yes

Section 2 : Hazards Ingredients

IMPORTANT NOTE :

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

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)
% W. t.	< 0.1	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1

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

MATERIAL OR INGREDIENTS	% W. t.
Nickel as nickel hydroxide nickel oxide nickel powder	30-50
Potassium Hydroxide	< 20
Cobalt as cobalt metal cobalt oxide cobalt hydroxide	2.5-6.0
Sodium Hydroxide	< 20
Zinc as zinc metal zinc oxide zinc hydroxide	< 3
Mercury	0-0.0005
Lead as lead metal lead oxide	0-0.004
Cadmium as cadmium metal cadmium oxide cadmium hydroxide	< 0.002
Hexavalent Chromium (Cr^{6+})	0-0.0005
Polybrominated Biphenyls (PBBs)	Nil
Polybrominated Diphenyls Ethers (PBDEs)	Nil

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Section 3 : 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.	
Appearancea nd Odor Cylindrical Shape, odorless	

Section 4 : Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	**X**	
Incompatibility (MaterialstoAvoid)			
Hazardous Decomposition or Byproducts			
Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	**X**	

Section 5 : Fire and Explosion Hazard Data

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.

Section 6 : Health Hazard Data

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. Provide fresh air and seek medical attention.
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. Remove contaminated clothing and wash skin with soap and water. If a chemical burn occurs or if irritation persists, seek medical attention.
Eye Contact :
Contents of an open battery can cause severe irritation and chemical burns. 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.

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Section 7 : Precautions for Safe Handling and Use

Storage :
Store in a cool, well ventilated area. Elevated temperatures can result in shortened battery life.
Mechanical Containment :
Never seal or encapsulate nickel metal hydride batteries.
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. However, this battery is capable of delivering very high short circuit currents. Prolonged short circuits will cause high cell temperatures which can cause skin burns. Sources of short circuits include jumbled batteries in bulk containers, metal jewelry, and metal covered tables or metal belts used for assembly of batteries into devices.
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.

Section 8 : 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 9 : Special Protection Information

Ventilation Requirements :
Not necessary under normal conditions.
Respiratory Protection :
Not necessary under normal conditions.
Eye Protection :
Not necessary under normal conditions. Wear safety glasses with side shields if handling an open or leaking battery.
Gloves :
Not necessary under normal conditions. Use neoprene or natural rubber gloves if handling an open or leaking battery.
Open Battery Storage :
Battery should not be opened. Should a cell become disassembled, the electrode should be stored in a fireproof cabinet, away from combustibles.

Keep batteries between -20℃ and 35℃ for prolong storage.

When the cells are closed to fully charged, the storage temperature should be between -20℃ and 30℃ and should be controlled at 10-20℃ during transportation and packed with efficient air ventilation.

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Section 10 : 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 11 : Ecological Information

N.A.

Section 12 : Disposal Method

Dispose of batteries according to government regulations.

Section 13 : Transportation Information

HI-WATT sealed Nickel Metal Hydride batteries are considered to be "dry cell" batteries and are unregulated for purposes of transportation by the U.S. Department of Transportation (DOT), International Civil Aviation Administration (ICAO), International Air Transport Association (IATA) and International Maritime Dangerous Goods Regulations (IMDG). The only DOT requirement for shipping these batteries is special provision 130 which states : "Batteries, not subject to the requirements of this subchapter only when they are offered for transportation in a manner that prevents the dangerous evolution of heat (for example, by the effective insulation of exposed terminals)". As of 1/1/97 IATA requires that batteries being transported by air must be protected from short-circuiting and protected from movement that could lead to short-circuiting.

Section 14 : Regulatory Information

Special requirement be according to the local regulatories.

Section 15 : Other Information

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

Section 16 : Measures for Fire Extinction

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.

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