Tiger Head Hi-Watt Battery (HK) Co. , Ltd.

MATERIAL SAFETY DATA SHEET

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SECTION 1: PRODUCT(Chemical Product and Company Identification)

· Chemical Product identification

· Product name: Ni-MH rechargeable batteries

· Battery Model: HR9V200

Company Name:**TIGER HEAD HI-WATT BATTERY (HK) CO., LTD.**

ADD:FLAT RM 705B 7/F HARBOUR CRYSTAL CENTRE 100 GRANVILLE ROAD TSIM SHA TSUI EAST KLN HK.

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SECTION 2: COMPONENTS

COMPONENTS	%WEIGHT		COMPONENTS	%WEIGHT
Nickel ,Nickel hydroxide	About 32%		Hydrogen storage alloy powder (Ni,La,Ce,Pr,Nd.Mn,Al,Co)	About 38%
Cobalt ,	About 3%		Iron	About 10%
Potassium hydroxide	About 4%		Nylon	About 3%
PP fiber Separator	About 8%		Other	About 2%

SECTION 3: PHYSICAL DATA

COMPONENTS	DENSITY (g/cm3)	MELTING POINT	SOLUBILITY (H_2O)	ODOR	APPEARANCE
Nickel	8.0	About 1200°C	None	None	Sliver-Gray Metal
Nickel hydroxide	4.3	N/A	None	None	green Powder
Hydrogen storage alloy powder	8.2	About 1200°C	None	None	Gray black Powder
Cobalt	8.0	About 1200°C	None	None	Gray black Powder
Iron	7.8	About 1200°C	None	None	Sliver-white Metal
potassium hydroxide liquid	About 1.3	N/A	100%	None	Clear Colorless Liquid
PP fiber Separator	0.92	165°C	None	None	Yellow fabric
Nylon	1.15	260°C	None	None	Blue solid

SECTION 4: PROTECTION

EXPOSURE	PROTECTION	COMMENTS
SKIN	Rubber gloves, Apron, Safety shoes	Protective equipment must be worn if battery is cracked or otherwise damaged.
RESPIRATORY	Respirator (for powder)	A respirator should be worn during reclaim operations if the TLV exceeded.
EYES	Safety goggles, Face Shield	Protective equipment must be worn if battery is being

		pressed

SECTION 5: FLAMMABILITY DATA

COMPONENTS	FLASHPOINT	EXPLOSIVE LIMITS	COMMENTS
Nickel, Nickel Cadmium	None	None	Not burn
Potassium Cadmium	None	None	Not burn
Cobalt, Iron,	None	None	Not burn
Hydrogen absorbing alloy	None	None	Can be burnt if put in fire and sunlight or high heat at air. Extinguishing Media: Dry chemical, sand.
Hydrogen	NONE	NONE	NONE
PP fiber Separator	None	None	Temperatures over 315 °C, Toxic gases may be released. In case of fire: wear self-contained breathing apparatus.
Nylon	None	None	Temperatures over 350 °C may release toxic gases. In case of fire: wear positive pressure self-contained breathing apparatus.

SECTION 6: REACTIVITY DATA

COMPONENT 1	**Nickel hydroxide**
STABILITY	Capable absorb water and carbon dioxide, react with acid
DECOMPOSITION PRODUCTS	H2O and NiO2 (At air over 400°C)
CONDITIONS TO AVOID	High temperature and water.
COMPONENT 2	**Hydrogen storage alloy powder**
STABILITY	Capable oxidation at air, react with acid
DECOMPOSITION PRODUCTS	Oxide and hydroxide
CONDITIONS TO AVOID	Prohibit high temperature, sparks, etc.
COMPONENT 3	**PP separator , Nylon**
STABILITY	Release toxic gases at high temperature over 315°C
DECOMPOSITION PRODUCTS	Water and carbon dioxide etc,
CONDITIONS TO AVOID	Prohibit high temperature, sparks, etc.
COMPONENT4	**Potassium hydroxide**
STABILITY	Capable absorb water and carbon dioxide.
CAUSTICITY	React many metal (Al etc), acid and many organic compounds
CONDITIONS TO AVOID	Prohibit water, acid etc.

SECTION 7: CONTROL MEASURES

1. Store NI-MH batteries in a location with low humidity, no corrosive gases, no sunlight and below 30°C . Room ventilation is required for batteries utilized for standby power generation. Never recharge batteries in a sealed space.

2. Do not remove vent caps. Follow shipping and handling instructions that are applicable to the battery type. To avoid damage to terminals and seals, do not double-stack industrial batteries.

STEPS TO TAKE IN CASE OF LEAKS OR SPILLS

If potassium hydroxide liquid is spilled from a battery, neutralize the alkali with boric acid.

Flush the area with water discard to the sewage systems. Do not allow unneutralized alkali into the sewage system.

WASTE DISPOSAL METHOD:

Neutralized alkali may be flushed down the sewer. Spent batteries must be treated as hazardous waste and disposed of according to local state, and federal regulations. A copy of this material safety data must be supplied to any scrap dealer or secondary smelter with battery.

ELECTRICAL SAFETY

Do not rest tools or cables on the battery. Use insulated tools only.

Follow all installation instruction when installing or maintaining battery systems.

SECTION 8: HEALTH HAZARD DATA

POTASSIUM HYDROXIDE: Potassium hydroxide is a strong corrosive. Contact with alkali can cause severe burns on the skin and in the eyes. Potassium hydroxide will cause tract burns. Alkali can be release if the battery case is damaged or if the vents are opened in use.

SECTION 9: POTASSIUM HYDROXIDE LIQUID PRECAUTIONS

SKIN CONTACT: Alkali may cause burns or ulceration. Flush with plenty of water, remove contaminated clothing, and see physician if contact area is large or if blisters form.

EYE CONTACT: Alkali may cause severe irritation, burns, cornea damage and blindness. Immediately flush with water until physician arrives.

INGESTION: ALKALI may cause irritation of mouth, throat, esophagus and stomach. Flush mouth with water, Call physician If patient is conscious,

SECTION 10: Transportation Information

HW batteries are consider to be "Dry cell" batteries and are unregulated for purposes of transportation by the US 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 there batteries is special provision 130 which states:" Batteries", dry are 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.

We hereby certify that all Tiger Head Hi-Watt Battery (HK) CO.,LTD Free Rechargeable Sealed Ni-MH batteries conform as a result of passing the Vibration and Pressure Differential Test described in IEC 61436. HW having met the related conditions are EXEMPT from hazardous goods regulations for the purpose of transportation and therefore are unrestricted for transportation by any means. But HW must be carried with a container at low humidity, no corrosive gases and below 50°C .

Section 11: Regulatory Information

Special requirement be according to the local Regulatory.

SECTION12: Ecological Information

N/A

SECTION 13: Disposal Method

Dispose of batteries according to government Regulations

SECTION 14: HANDLING PRECAUTIONS FOR HW

Please read carefully the following important precautions before the first time use of Ni-MH batteries. Make sure to understand and observe all cautionary instructions stated vide infra, so as to avoid any possible safety hazards that are caused by any misuse, misapplication or damage to Ni-MH batteries.

- Never heat or dispose of batteries in fire, which or else, may cause burst or leakage.
- Never disassemble the battery. The alkaline electrolyte is strongly corrosive and may cause personal injury.
- Never short-circuit batteries.
- Never apply battery into a airtight compartment or sealed container.
- Never swallow batteries.
- Do not insert batteries with their polarities reversed.
- Do not mix old and new batteries together, neither with NI-MH, dry batteries or another manufacturer's batteries. Differences in various Characteristics may cause damage to batteries or product.
- Do not use the battery again if it is leaking, deformed or abnormal in any other way.
- Do not apply water to battery or put battery in water, which causes the battery to cease function.
- Do not throw away battery when the life cycle is finished. Use the recycle dustbin for collecting the battery.
- Be sure to use the specified charger for battery, and follow the charging instructions correctly.
- Be sure to charge the batteries prior to use.
- Always keep battery out of reach of babies or smaller children. Children should not use the rechargeable batteries unless they are informed of and fully understand the appropriate usage.
- When two or more batteries are to be used together, be sure to charge all the batteries together at the same time before use.

Be sure to consult Tiger Head Hi-Watt any time you are to use HW Ni-MH batteries for your products, or preparing your technical specifications of JH Ni-MH batteries.

SECTION 15: 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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