BYD MATERIAL SAFETY DATA SHEET

PRODUCT NAME: NI-MH SEALED CELL BATTERY

1. Information of Manufacturer

Manufacturer Name BYD Company Limited	Telephone Number for Information +86 755 84203333
Address P.C.: 518119 Yan An Road, KuiChong, Longgang, Shenzhen, China	Fax Number for Information +86 755 84202222

2. HEALTH HAZARD INFORMATION

Effects of Overexposure

Eye Effects: In the case of a fire or cell rupture the electrolyte solution inside battery is extremely corrosive to eye tissue and may result in permanent blindness. Contact with nickel oxide may cause minor irritation.

Skin Effect: Contact with electrolyte solution inside battery may cause serious burns to skin tissues. Contact with nickel compounds may cause result in chronic eczema or nickel itch.

Ingestion: Ingestion of electrolyte solution causes tissue damage to throat area and gastro/respiratory tract. Ingestion of nickel compounds causes nausea and intestinal disorders.

Inhalation: No exposure possible except in the case of fire of abuse. Effects of inhalation of nickel compounds vary from mild irritation of nasal mucous membranes to damage of lung tissues proper.

3. EMERGENCY FIRST AID

Battery Electrolyte:

Eye Contact: Flush with plenty of water for at least 15 minutes if abuse causes safety vents to activate. Get immediate medical attention.

Skin Contact: Remove contaminated clothing and flush effected areas with plenty of water for at least 15 minutes. Wash with soap and water.

Ingestion: Do not induce vomiting. Dilute by giving water. If available give several glasses of mild. Get immediate medical attention. Do not give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. Give oxygen or artificial respiration if needed. Get immediate medical attention.

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4. REACTIVITY DATA

Incompatibilities: Aluminum, zinc and other active metals, acid, chlorinated and aromatic hydrocarbons, nitro-carbons, halocarbons.

Hazardous Decomposition products: Nickel oxide, and potassium hydroxide.

Hazardous Polymerization will not occur.

5. SPECIAL PROTECTION INFORMATION

Respiratory Protection: Use NOISH/MSHA approved respirator if cell broken open during a fire to maintain exposure levels below the TWA for hydrogen absorbed alloy and nickel compounds.

Eye Protection: Use splash goggles or face shield if cell activates due to abuse.

H and Protection: If exposure to electrolyte solution, or dried salts is likely, use any water-insoluble non-performance glove, i.e., synthetic rubber. Do not use leather or wool.

6. FIRE AND EXPLOSION HAZARDS

Extinguishing Media

	Melting Point	Boiling Point
Nickel	2645 ^{o} F	4850 ^{o} F
Nickel Hydroxide	N/A	445 ^{o} F(Decomposes to NiO)
Nickel Oxide	3605 ^{o} F	90 ^{o} F (Decomposes to Ni and O_2)

Special Fire Fighting Procedure: Use self-contained breathing apparatus to avoid breathing toxic fumes. Wear protective clothing and equipment to prevent potential body contact with electrolyte solution or mixture of water and solution.

Fire and Explosion Hazards: Electrolyte solution is corrosive to all human tissues. It will react violently with many organic chemicals, especially nitro-carbons and chlorocarbons. Electrolyte solution reacts with zinc, aluminum and other active materials, releasing flammable hydrogen gas.

In case of fire, do not take in smoke and fume.

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7. Ingredients	EXPOSURE LIMITS	QUANTITY
Rare metal(Hydrogen absorbed alloy)		≈14.5%
Nickel (as Nickel, Nickel Hydroxide, and Nickel Oxide)		≈44.0%
K^+		≈1.3%
Cobalt Hydroxide(as Cobalt Metal)		≈6.7%
Manganese		≈2.4%
Aluminum		≈1.5%
Hydroxyl, Liquid		≈1.4%
Nylon&PP		≈4.2%
Iron(steel shell, Cap, NE base, etc)		≈19.4%
Additive		≈4.6%

8. PHYSICAL PROPERTIES

Boiling Point: Not applicable Melting pointing: Not applicable
Vapor Pressure: Not applicable Vapor Density: Not applicable
Specific Gravity: 1.17-1.250(electrolyte) Evaporation Rate: Not determined
Solubility in water: Electrolyte solution is completely soluble
REMAINDER: INSOLUBLE

9. SPILL MANAGEMENT PROCEDURES

Electrolyte Spill: Flush with water and neutralize with dilute vitriol.

10. DISPOSAL INFORMATION

The storage battery is a hazardous waste under RCRA. It may be returned to BYD for recycling.
Battery is TCLP Toxic. Battery and electrolyte solution are corrosive. If not recycled, must be disposed of in accordance with all international, national, provincial

11. PRECAUTIONS AND COMMENTS

These cells and batteries manufactured from them may be highly charged and are capable of high-energy discharge. Care should be taken to handle cells properly to avoid shorting or misuse that will result in rapid uncontrolled electrical, chemical, or heat energy release.
Do not short circuit---may cause burns.
Do not break open cell.

12. Storage Information

These cells and batteries shall not be stored in high temperature, the maximum temperature is 60℃(less than one month), otherwise the cells and batteries maybe leakage. Besides, the cells and batteries shall be protected from short circuit and protected from movement that could result in short circuit.

13. Ecological Information

N/A

14. Disposal Method

Disposal of batteries comply with government regulations.

15. Transportation Information

All of BYD cells being transported by air, by sea, or by truck shall be protected from short circuit and protected from movement that could result in short circuit.
BYD sealed Nickel Metal Hydride batteries are considered to be "dry cell" batteries and are not subject to dangerous goods regulation for the purpose of transportation by the U.S. Department of Transportation (DOT), the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA) or the International Maritime Dangerous Goods regulations (IMDG). The only DOT requirement for shipping Nickel Metal Hydride 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)." IATA requires that batteries being transported by air must be protected from short-circuiting and protected from movement that could lead to short-circuiting.

16. Regulatory Information

Special requirements shall comply with local regulations.

17. Other Information

The data in this MSDS relates only to the specific material designed herein.

18. Measure for fire extinction

In case of fire, it is permitted to use any class of extinguishing medium on those batteries or the 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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Note: This information has been compiled from sources considered to be dependable and is accurate and reliable. It is the user's responsibility to satisfy himself as to the suitability and completeness of this information for his own particular use. We do not accept liability for any loss or damage that may occur, whether direct, indirect, incidental or consequential, from the use of this information nor do we offer warranty against patent infringement. Additional information is also available by contacting BYD.

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