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PRODUCT SAFETY DATA SHEET

This PSDS document refers to batteries as a consumer product. Under the Global Harmonized System the batteries are considered "articles" and are exempted from SDS classification criteria from and the GHS labelling. The following document is supplied as a feedback to requests concerning battery use, regulatory compliance and safety of use.

1. PRODUCTS AND COMPANY IDENTIFICATION

Product name: Ni-MH Rechargeable Ready to Use, High Capacity		
IEC Designation	Size	Min. capacity (mAh)
HHR-3XXE	AA	2450
HHR-4XXE	AAA	900
HHR-3MVE	AA	1900
HHR-4MVE	AAA	750
HHR-3LVE	AA	1000
BK-3HGAE	AA	2500
BK-4HGAE	AAA	930

Advanced Power Solutions

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2. HAZARDS IDENTIFICATION

Most Important Hazardous

Adverse Human Health

Effects:

When the leaked liquid adheres to the skin, it may cause the damage of the skin. When it is gotten in eye, it may cause the damage of eye such as losing sight.

Physical And Chemical

Hazard:

There is the risk of explosion if batteries are disposed in fire, heated above 100 degree C. Stacking or jumbling batteries may cause external short circuits, heat generation and explosion.

3. COMPOSITION/IMFORMATION ON INGREDIENTS

Component	Content (%)	CAS No.
Nickel Hydroxide Cobalt Hydroxide	15-25 1-5	12054-48-7 21041-93-0
Hydrogen absorbing alloy	20-35	7440-02-0 (Ni) 7440-48-4 (Co) 7439-96-5 (Mn) 7429-90-5 (Al)
Nickel	3-10	7440-02-0-
Iron	10-25	7439-89-6
Potassium Hydroxide Sodium Hydroxide Lithium Hydroxide	0-15	1310-58-3 1310-73-2 1310-65-2

4. FIRST AID MEASURES (IF LEAKED SOLUTION WILL CONTACT)

Skin Contact: Wash the contact areas off immediately with plenty of water and soap. If appropriate procedures are not taken, this may cause sores on the skin.

Eye Contact: Flush the eyes with plenty of clean water for at least 15 minutes immediately, without rubbing. Get immediate medical treatment. If appropriate procedures are not taken, this may cause eye injury.

Inhalation: Remove to fresh air immediately. Get medical treatment immediately.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry sand, chemical powder fire extinguisher.

Specific Fire-Fighting Methods: Be sure on the windward to extinguish the fire, since vapor from burning batteries may make eyes, nose and throat irritate. Wear the respiratory protection equipment in some cases.

6. ACCIDENTAL RELEASE MEASURES
(IN CASE OF ELECTROLYTE LEAKAGE FROM THE BATTERY)

<u>Health Considerations and Protective Equipment:</u>	Wear proper protective equipment.
<u>Environmental Precautions:</u>	Prevent spills form entering sewers, watercourses.
<u>Spill Clean-Up Procedures:</u>	Collect material to minimize dust generation; use wet mop, damp sponge. Place collected material into a suitable container for disposal.

7. HANDLING AND STORAGE

Handling

Precaution: When packing the batteries, do not allow battery terminals to contact each other, or contact with electrically conductive materials. Be sure to pack batteries by providing partitions in packaging boxes, or in separate plastic bags to avoid they are mixed together. Use strong material for packaging boxes to avoid damage by vibration, impact, dropping and stacking during transportation. Do not recharge batteries. Do not deform batteries. Do not mix different types of batteries. Do not solder directly onto batteries.

Storage

Storage Condition: Do not let water penetrate into packaging boxes during their storage and transportation. Do not store the batteries in the high temperature exceeding 35 degree C, under direct sunlight or near heat source. Also avoid high humidity. Be sure not to expose the batteries to condensation, water drop or not to store them under frozen condition

Safe Packaging Materials: Carton boxes, Wooden boxes

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION
(IN CASE OF ELECTROLYTE LEAKAGE FROM THE BATTERY)

Engineering Measures:	Make available in the work area and storage place emergency shower and eyes wash
Occupational Exposure Limits (OELs):	Not specified in ACGIH and OSHA
<u>Protective Equipment</u>	
Respiratory Protection:	Self-Contained Breathing Apparatus for organic gases
Hand Protection:	Safety gloves.
Eye Protection:	Safety glasses with side shields must be worn when handling this product
Skin and Body Protection:	To prevent any contact, wear impervious clothing such as boots or whole body suits as appropriate

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Style	cylindrical shape (Nickel-Metal hydride battery is stored
Appearance:	in the plastic resin case or tube)
Colour:	Depend on the design
Odour:	Odourless~Characteristic odour
pH:	Not Applicable
Explosion Properties:	No Data
Specific Gravity (g/cm ³):	No Data

10. STABILITY AND REACTIVITY (PHYSICAL HAZARD)

Since batteries utilize a chemical reaction they are actually considered a chemical product. As such, battery performance will deteriorate over time even if stored for a long period of time without being used. In addition, the various usage conditions such as discharge, ambient temperature, etc. are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage.

11. TOXICOLOGICAL INFORMATION

<u>Acute Toxicity:</u>	No information as a battery
<u>Local Effects:</u>	No information as a battery

Battery is not harmful as its ingredients are in a hermetically sealed state. However there is no environmental impact information. Mercury (Hg), Cadmium (Cd) and Lead (Pb) are not used in cell.

12. DISPOSAL CONSIDERATIONS

When the battery is worn out, dispose of it under the ordinance of each local government or the law issued by relating government

13. TRANSPORT INFORMATION

IATA Dangerous Goods Regulations Edition 61 (IATA DGR)

ICAO Technical Instructions for the safe transport of dangerous goods by air

The product is handled as Non-Dangerous Goods based on IATA (A199) for air transportation.

The product is handled as following based on IMDG Code UN3496 (SP963) for marine transportation.

1. Nickel-metal hydride button cell or nickel-metal hydride cells or batteries packed with or contained in equipment are Non-Dangerous Goods.
2. All other nickel-metal hydride cells or batteries shall be securely packed and protected from short circuit. They are Non-Dangerous Goods provided they are loaded in a cargo transport unit in a total quantity of less than 100kg gross mass.

3. When loaded in cargo transport unit in a total quantity of 100kg gross mass or more, they are Dangerous Goods (Class 9)

Prior to transportation:

1. During the transportation of a large amount of batteries by ship, trailer or railway, do not leave them in the places of high temperatures and do not allow them to be exposed to dew condensation.
2. Avoid transportation with the possibility of the collapse of cargo piles and the packing damage.
3. Protect the terminals of batteries and prevent them from short circuit so as not to cause dangerous heat generation.

For air transportation, the words "Not Restricted, as per Special Provision A199" must be included in the description of the substance on the Air Waybill, when an Air Waybill is issued

14. REGULATORY INFORMATIONS

- IATA Dangerous Goods Regulations 63rd Edition (2022)
- IMO International Maritime Dangerous Goods 2020 Edition
- EU Battery Directive (2006/66/EC, version 2018)
<http://data.europa.eu/eli/dir/2006/66/2018-07-04>
- Regulation (EC) No, 1907/2006 on the Registration, Evaluation, Authorization of Chemicals (REACH) (current version 1/5/2022)
<http://data.europa.eu/eli/reg/2006/1907/2022-05-01>
- UN Recommendations on the Transportation of Dangerous Goods, Model Regulations
- UN Recommendations on the Transportation of Dangerous Goods, Manual of Tests and Criteria
- State of California Regulations - Best management practices for Perchlorate Materials
<http://dtsc.ca.gov/dtsc-laws-regulations/title22/>
- Act on Preventing Environmental Pollution of Mercury (Japan)

15. OTHER INFORMATION

It is necessary for the customer to take appropriate measures depending on the actual situation such as the individual handling, based on this information.

In California only, packages that contain CR lithium coin cells and the Owners/ Operating Instructions of products that contain CR lithium coin cells must include the following statement: Perchlorate Material special handling may apply.

See <http://www.dtsc.ca.gov/hazardouswaste/perchlorate>.