This product is a consumer product which is used in a hermetically sealed state. So, it is not an object of the SDS system. This document is provided to customers as reference information for the safe handling of the product. The information and recommendations set forth are made in good faith and are believed to be accurate at the date of preparation. Panasonic Corporation makes no warranty expressed or implied.

PRODUCT SAFETY DATA SHEET

1 Chemical product and company identification

Name of Product	:	Nickel-Metal Hydride Battery BK-3MCCF, BK-4MCCF
Name of Company	:	Panasonic Corporation
Address	:	1-1 Matsushita-cho, Moriguchi-city, Osaka, 570-8511, Japan
Emergency Contact	:	+81-6-6994-4560 (Working hours) +81-6-6991-1141 (Holiday)

2 Hazards identification

GHS Classification	:	Not applicable
Toxicity	:	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.
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/information of ingredients

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

4 First aid measures (in case of electrolyte leakage from the battery)

Eye contact by electrolyte	:	Do not rub eyes. Wash immediately with large amount of clean water such as tap water 15 minutes or more then receive the ophthalmologist's treatment promptly. It may cause such as losing sight when the right procedure is not taken.
Skin contact by electrolyte	:	Wash the affected area under tepid running water using a mild soap. If appropriates procedures are not taken, this may cause sores on the skin. Get medical attention if irritation develops or persists.
Ingestion of electrolyte	:	Wash in the mouth immediately with large amount of clean water and make the sufferer drink a lot of water. Arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.
Inhalation of electrolyte fume		Remove to fresh air immediately. Take a medical treatment

5 Firefighting measures

Extinguishing Media

Dry sand, chemical powder fire extinguisher.

Specific Fire-Fighting Methods

1. When in firefighting, the air respiratory protection should be used because acrid or harmful gas might be generated when fire is extinguished.
2. Remove combustibles at once from a firefighting area.
3. Remove the batteries to safe area at once from firefighting place.

6 Accidental release measures (in case of electrolyte leakage from the battery)

- Health Considerations and Protective Equipment

  Wear proper protective equipment.
- Environmental Precautions

  Prevent spills form entering sewers, watercourses.
- Spill Clean-Up Procedures

  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

- When packing the batteries, do not allow battery terminals to contact each other, or contact with other metals. Be sure to pack batteries by providing partitions in the packaging box, or in a separate plastic bag so that the single batteries are not mixed together.
- Use strong material for packaging boxes so that they will not be damaged by vibration, impact, dropping and stacking during their transportation.
- Do not short-circuit, recharge, deform, throw into fire or disassemble.
- Do not mix different type of batteries.
- Do not solder directly onto batteries.
- Insert the battery correctly in electrical equipment.

Storage

- Do not let water penetrate into packaging boxes during their storage and transportation.
- Do not store the battery in places of the high temperature or under direct sunlight.
- Please also avoid the places of high humidity. Be sure not to expose the battery to condensation, rain or frozen condition

8. Exposure controls and personal protection

Acceptable concentration	:	Not specified about Nickel-Metal Hydride Battery.
Facilities	:	Nothing in particular.

Protective Equipment (in case of electrolyte leakage from the battery)

Respiratory Protection	:	For most condition no respiratory protection.
Hand Protection	:	Safety gloves.
Eye Protection	:	Safety glasses 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

Appearance	:	Nickel-Metal hydride battery is stored in the plastic resin case or tube.
Nominal Voltage	:	The voltage value depends on the number of built-in batteries used in battery pack.

10. Stability and reactivity

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

Battery is not harmful as its ingredients are in a hermetically sealed state.

12. Ecological information

In case of the worn out battery was disposed in land, the battery case may be corroded, and leak electrolyte. However, there is no environmental impact information.
Mercury (Hg), Cadmium (Cd) and Lead (Pb) are not used in cell.

13. Disposal considerations

When the battery is worn out, dispose of it under the ordinance of each local government.

14. Transport information

・IATA Dangerous Goods Regulations 60th Edition (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.

15. Regulatory information

・EU Battery Directive（2006/66/EC, 2013/56/EU)
・Regulation (EC) No. 1907/2006 on the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH)
・Act on Preventing Environmental Pollution of Mercury (Japan)

16. Other information

This PSDS is provided to customers as reference information in order to handle batteries safely. It is necessary for the customer to take appropriate measures depending on the actual situation such as the individual handling, based on this information.

References

・IATA Dangerous Goods Regulations 60th Edition (IATA DGR)
・IMO International Maritime Dangerous Goods Code 2016 and 2018 Edition (IMDG Code)
・UN Recommendations on the Transport of Dangerous Goods - Model Regulations

Prepared by: Engineering Department
Energy Device Business Division
Panasonic Corporation