

Ref. No: ZN-PSDS-VI-APS PL

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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: <b>Zinc Carbon</b> |      |         |
|----------------------------------|------|---------|
| Panasonic Red Zinc               |      |         |
| IEC Designation                  | Size | Voltage |
| R03                              | AAA  | 1,5     |
| R6                               | AA   |         |
| R14                              | C    |         |
| R20                              | D    |         |

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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.

##### Specific Hazards:

Not Applicable.

##### Class Name Of Hazardous

Not Applicable.

##### Chemicals:

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance name: Zinc Carbon Battery

| Component            | Content %  | CAS No.    |
|----------------------|------------|------------|
| <Positive electrode> |            |            |
| Manganese dioxide    | 15-30wt    | 1313-13-9  |
| Acetylene Black      | 2-8wt      | 1333-86-4  |
| <Negative electrode> |            |            |
| Zinc                 | 8-40wt     | 7440-66-6  |
| <Electrolyte>        |            |            |
| Zinc Chloride        | 2-10wt     | 7646-85-7  |
| Ammonium Chloride    | 0.05-2.0wt | 12125-02-9 |
| Water                | 10-20wt    | -          |

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

Skin Contact:

Wash the affected area under tepid running water using a mild soap. If appropriate procedures are not taken, this may cause sores on the skin. Get medical attention if irritation develops or persists.

Eye Contact:

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.

Ingestion:

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. FIRE FIGHTING MEASURES

Extinguishing Media: Dry chemical, carbon dioxide, great deal of water.

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)

Health Considerations and Protective Equipment: Wear proper protective equipment.

Environmental Precautions: Prevent spills from 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

Technical Measures: No exposure limits exist for the battery

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

## Protective Equipment

## Respiratory Protection:

For most condition no respiratory protection

## 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 Appearance:

Cylindrical shape

## Colour:

Depend on the design

## Odour:

Odourless~Characteristic odour

## pH:

Not Applicable

## Specific temperatures

Not Applicable

## /Temperature range

at which changes in physical state occur:

## Flash Point:

Not Applicable

## Explosion Properties:

No Data

Specific Gravity (g/cm<sup>3</sup>):

No Data

## Solubility:

Not Applicable

## Voltage:

1.5 Volts

## 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.

|   |  |
|---|--|
| <u>Stability:</u>                                     | Stable under normal conditions   |
| <u>When batteries are short-circuited:</u>            | There is the possibility that stacking or jumbling batteries cause short circuits, heat generation, leakage or explosion |
| <u>When batteries are recharge:</u>                   | Risk of swelling leakage or explosion, contents may protrude   |
| <u>When batteries are heated or disposed in fire:</u> | Risk of leakage or explosion   |
| <u>When batteries are disassembled:</u>               | Risk of short circuits. Electrolyte may cause skin itching   |
| <u>Reactivity:</u>                                    | Stable under normal conditions   |
| <u>Hazardous Decomposition Products:</u>              | No information   |

## TOXICOLOGICAL INFORMATION

Battery is not harmful as its ingredients are in a hermetically sealed state. In case of the worn out battery was disposed in land, the battery case may be corroded, and leak electrolyte. Mercury (Hg), Cadmium (Cd) and Lead (Pb) are not used in cell.

## 11. 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

## 12. TRANSPORT INFORMATION

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 condensation. During the transportation do not allow packages to be dropped or damaged.

## 13. REGULATORY INFORMATIONS

- 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>

## 14. OTHER INFORMATION

### References:

- IATA Dangerous Goods Regulations 64<sup>th</sup> Edition (2023)
- IMO International Maritime Dangerous Goods 2020 Edition