

Ref. No: AL MN-PSDS-V3-APS nv

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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: Alkaline Batteries Panasonic Powerline		
IEC Designation	Size	Voltage
LR6	AA	1,5
LR03	AAA	1,5
LR14	C	1,5
LR20	D	1,5
6LR61	9V	9

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 Chemicals:

Not Applicable.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance name: Alkaline Battery

COMPONENT	CONCENTRATION (Wt %)	FORMULA	CAS NO.
<Positive Electrode> Manganese dioxide Graphite	20–45 1.0–4.5	MnO ₂ C	1313-13-9 7782-42-5
<Negative Electrode> Zinc	10–20	Zn	7440-66-6
<Electrolyte> Potassium Hydroxide Water	3–10 1–15	KOH H ₂ O	1310-58-3

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:

Arrange for transport to the nearest medical facility for examination and treatment by a physician as soon as possible.

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)

<u>Health Considerations and Protective Equipment:</u>	Wear proper protective equipment.
<u>Environmental Precautions:</u>	Prevent spills from 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

<u>Technical Measures:</u>	No exposure limits exist for the battery
<u>Precaution:</u>	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

<u>Storage Condition:</u>	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
<u>Safe Packaging Materials:</u>	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 Equipments	
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 PROPERTIE

Physical Style Appearance:	Cylindrical shape
Colour:	Depend on the design
Odor:	Odourless~Characteristic odour
pH:	Not Applicable
Specific temperatures /Temperature range at which changes in physical state occur:	Not Applicable
Flash Point:	Not Applicable
Explosion Properties:	No Data
Specific Gravity (g/cm ³):	No Data
Solubility:	Not Applicable
Voltage:	1.5 Volts-9Volts

10. STABILITY AND REACTIVITY (PHYSICAL HAZARD)

<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

11. TOXICOLOGICAL INFORMATION

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

In case of the worn out battery was disposed in land, the battery case may be corroded, and leak electrolyte. But, we have no ecological information.

Heavy metal quantity in a cell:

Hg	< 1 ppm	Reducing Vaporization Atomic Absorption Spectrometer
Cd	< 10 ppm	Inductively Coupled Plasma Atomic Emission Spectroscopy
Pb	< 10 ppm	Inductively Coupled Plasma Atomic Emission Spectroscopy

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

As alkaline battery is listed in Special Provision A123 of IATA Dangerous Goods Regulations when it is shipped by air, alkaline battery is not a regulation substance in the hazardous substance shipping regulations. In addition, this battery requires the following attentions

14. 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>

15. OTHER INFORMATION

References:

- IATA Dangerous Goods Regulations 64th Edition (2023)
- IMO International Maritime Dangerous Goods 2020 Edition