# PRODUCT SPECIFICATION

## Power Alkaline LR14

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| REV. No. | REASON | CONTENTS | DATE | REMARK |
|---|---|---|---|---|
| 0 | Initial Release | | 2020-01-03 | |
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# Power Alkaline LR14

**1. Type designation:** IEC LR14

JIS: AM-2

ANSI: C

**2. Chemical system:**

Electrolyte-zinc-manganese dioxide (mercury & cadmium free)

**3. Dimension: Diameter: 24.9-26.2mm**

**Height: 48.6-50.0mm**

**4. Nominal voltage: 1.5Volts**

**5. Nominal:**

The weight of each battery is approximately: 70.0g

**6. Heavy Metal content (%):**

| Mercury content | Cadmium | Lead |
|---|---|---|
| ≤1ppm | ≤10ppm | ≤40ppm |

**7. Appearance and terminal:**

Battery shall be clean and have no dirt, no leakage, and no deformation which may affect their performance and actual use and shall have clearly visible markings.

**8. Battery capacity:** (Test environment：20℃±2,60%±15%R.H)

(Load resistance:**20 Ohms**, Daily period:**24h/d**, Cut off voltage:**0.8V**；According to as the above the same discharge condition, the capacity of each battery is approximately:**7200mAh)**

**9. Storage characteristics:**

**After 12 months storage at 20℃, 90% capacitance of fresh cells.**

**After 60 months storage at 20℃, 80% capacitance of fresh cells.**

**10. Electrical characteristics:**

(Test environment:20℃±2,60%±15%R.H)(Load resistance: **3.9ohms,** Measure time**: 0.3S**)

(All samples shall be normalized for a minimum of 8 hours at the above environment prior to measurement)

| | OCV (V) | SCC (A) |
|---|---|---|
| Initial | ⩾1.59 | ⩾10 |
| After 12 months storage | ⩾1.57 | ⩾8 |

Remark: OCV: Open Circuit Voltage; CCV: Close Circuit Voltage; SCC: Short Circuit Current

**11. Discharge test (service life) (Test environment: 20℃±2,45%--75%R.H)**

| Load | 400mA | 3.9Ω | 3.9Ω |
|---|---|---|---|
| Discharge mode | 2h/d | 4min/15min, 8h/d | 1h/day |
| End voltage | 0.9V | 0.9V | 0.8V |
| Initial | 11.5h | 19.5h | 20.5h |
| After 12 months storage | 10.5h | 18.0h | 19.5h |
| Applications | Portable stereo | Portable lighting | Toy |

Remark: The initial discharge test shall commence within 30 days of manufacture.

The discharge time is the minimum average duration (MAD).

Test quantity: n=9pcs (for per discharge test)

**12. Leakage-proof structure:**

① The sealing location of the battery is provided with double beading scores to make the structure tighter.

② Using imported special sealing glue, with more reliable leakage-proof performance.

**13. Safety test (Test environment: 20℃±2, 60%±15%R.H)**

| Test item | Test method | Test pcs | Requirements |
|---|---|---|---|
| Over-discharge leakage test | 3.9 ohms (24h/d) 48hours | 9pcs | No leakage |
| | 3.9 ohms (4min/15min, 8h/d) to 0.6V | 9pcs | No leakage |
| | 3.9 ohms (1h/d) to 0.6V | 9pcs | No leakage |
| | 400mA (2h/d) to 0.6V | 9pcs | No leakage |
| High temperature test | 60±2℃,RH:90±5%, after 20 days storage, the cells shall be stored in an ambient temperature of 20±2℃,RH:60±5%, for 4-24hours. | 40 | No leakage |
| One piece of battery | The terminal of an un-discharged battery is connected by wire. The circuit is completely for 24hours or until the case | 10 | No explosion |

| | | | |
|---|---|---|---|
| Short circuit test | temperature has return to environment. | | |
| Reversible charge | 4 pieces of battery are in series connected and one of them is under incorrect polarity for 24 hours or until the case temperature has return to environment. | 40 | No explosion |
| Over discharge | One battery discharge 20 ohms to 0.6V, then in series connect with 3 pieces of new battery with 20ohm 24h | 36 | No explosion |
| Free fall test | The battery free drops from one-meter height for 6 times, then store for 1h | 10 | No explosion |
| Impact under high and low temperature | Un-discharged battery store in test box under 70±2℃ for 24h,then change to -20℃ for 24h, repeat the above condition for 10 cycles. | 20 | No explosion |
| Storage after partial discharge | 50% discharged battery stored under 45±5℃ for 30days | 9 | No leakage<br>No explosion |

**14. Expiry period: 10 years**