TECHNICAL SPECIFICATION

1. Scope:

This specification applies to R6P carbon zinc battery produced

1.1 Designations

IEC& GB: R14P

JIS: UM-2

ANSI: C

1.2 Reference Document

IEC 60086-1 :2015 --- Primary Batteries - Part 1: General

IEC 60086-2 :2015--- Primary Batteries - Part 2: Physical and electrical specification

IEC 60086-5 :2015--- Primary Batteries - Part 5:safety of batteries with aqueous electrolyte

1.3 Execution Standard:

GB/T 8897.2-2021

2. Chemical System:

Zinc-Zinc Chloride-Manganese Dioxide

Formulación ecológica: 0% Mercurio (Hg) y 0% Cadmio (Cd). Lead content ≤1000 ppm.

3. Nominal Voltage: 1.5 V

4. Average Weight: 38.5+1g

5. Nominal Capacity:

Designed for heavy-duty applications in compliance with IEC standards

6. Electrical characteristics: Test conditions: load resistance (±0.5%) 3.9Ω, measuring time: 0.3s, temperature: 20±2℃)

	OCV (V)	Load Voltage (V)	Accepted Levels
New Battery	≥1.5+0.23	≥ 1.40	MIL-STD105E , II , AQL=1.5

8. Electrolyte Leakage Proof characteristics: (Test environment: Temperature 20 ± 2°C; Relative humidity: 55 +20/−40% RH)

Load	Daily period	End voltage	Technical requirement	Accepted levels
3.9Ω	4min/15min, 8h/day	0.6V	No leakage No deformation	N=9,Ac=1, Re=2
3.9Ω	1h/d			

9. Safety Performance

9.1.1 Test of safety under normal conditions

Item	Inspection method and procedure	Requirements
Battery Section - Storage After Use	Undischarged batteries are discharged using a 3.9 Ω load (4 min/15 min, 8 h/day) until their service life drops to 50% of the minimum average discharge time (MAD), and are then stored at 45°C ± 5°C for 30 days.	The batteries do not leak, explode, or catch fire.

Transportation - Vibration	(1) Record the battery open-circuit voltage; (2) Simple harmonic vibration: amplitude: ±0.8 mm; frequency sweep rate: 1 Hz/min; frequency range: 10 Hz–55 Hz; vibration axes: three mutually perpendicular axes of the battery; vibration duration: 85 min–95 min; (3) Allow the battery to rest for 1 hour after vibration.	The batteries do not leak, explode, or catch fire.
Transportation - Shock	(1) Record the battery open-circuit voltage; (2) Shock: 3 ms; minimum average acceleration: 75 × 9.8 m/s²; maximum acceleration: 150 × 9.8 m/s²; shock directions: three mutually perpendicular axes of the battery; number of shocks: once in each direction; (3) After the shock, let the battery rest for 1 hour.	The batteries do not leak, explode, or catch fire.
Climate - Temperature cycling	(1) 1 temperature cycle: 70°C, 4h → 20°C, 2h → -20°C, 4h → 20°C; (2) Temperature conversion interval: ≤30 min; (3) Battery withstands 10 temperature cycles; (4) The battery should be left aside for 7 days after cycling.	None of the batteries exploded or caught fire.

9.1.2 Reasonable Predictable Misuse

Item	Inspection method and procedure	Requirements
Improper installation	Four uncharged batteries are connected in series, with one of them (the test battery) connected in reverse polarity; the circuit remains connected until the surface temperature of the batteries drops to ambient temperature. The resistance in the circuit is less than 0.1 Ω.	None of the batteries exploded or caught fire.
Over-discharge	The battery under test was pre-discharged to 0.6 V (10 Ω load, 4 h/day discharge to a cut-off voltage of 0.6 V) and then connected in series with three undischarged batteries and a 9.1 Ω resistor; the circuit was closed until the total circuit voltage dropped to 2.4 V.	None of the batteries exploded or caught fire.
External short-circuit	Continuously short-circuit the battery under test until the battery surface temperature drops to ambient temperature. The resistance in the circuit shall be less than 0.1 Ω.	None of the batteries exploded or caught fire.
Free fall	The battery was dropped from a height of 1 meter onto a concrete surface; it was dropped twice along each of three mutually perpendicular axes—for a total of six drops—and then allowed to rest for one hour.	None of the batteries exploded or caught fire.

Definition of battery explosion: Solid material ejected instantaneously from any part of the battery travels to a distance of more than 25 cm away from the battery.

10. Identification

The contents of the label：
(1)Model：R14P
(2)Registered Trademark：POWERCELL
(3)Nominal Voltage：1.5V
(4)Battery Poloidal：“+”and“-”
(5)Warning words：Install and use correctly. Do not recharge, disassemble, heat and short-circuit.

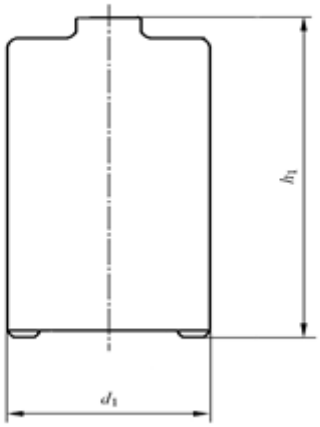
11. Precaution and Handling:

(1) Do not recharge the batteries. May cause leak or explode if charged.
(2) To install batteries following the instructions of“+”and“-”.
(3) Do not short-circuit, heat, dispose in fire or disassemble.
(4) Do not over-discharge batteries. Over- discharging battery may destroy the appliance.
(5) Do not mix with used or other battery type at the same time. Make sure use the same brand and replace all batteries.
(6) Remove batteries from device when it is not in use. Over-discharge may destroy the appliance.
(7) Do not allow metal objects to contact the battery terminals. It may destroy the battery.

12. Shelf Life

36 months (at a temperature of 20 ± 2°C and relative humidity of 55 +20/−40% RH)

13. Dimensions of R14P:



Item	Min.	Max.	Accepted levels
Diameter	24.9mm	26.2 mm	N=20, Ac=1, Re=2
Total height	48.6 mm	50.0 mm	N=20, Ac=1, Re=2

14. Safety Precautions / Precautions for Safe Use

Warning	Hazard / Risk
1. Do not throw the battery into fire or heat it	To avoid battery rupture, fire, etc.
2. Do not solder directly onto the battery	To avoid damaging the insulation ring and safety devices, leading to leakage, explosion, or fire
3. When installing batteries in electronic products and during use, do not reverse the "+" and "-" poles	To avoid forced charging, which damages the battery or causes leakage, heating, rupture, explosion, or fire
4. Do not short-circuit the positive and negative terminals of the battery	To avoid battery heating, leakage, explosion, fire, and personal injury
5. Do not immerse the battery in water	To avoid battery heating or rusting
6. Do not charge or force-discharge the battery	To avoid battery leakage, heating, explosion, or fire
7. Do not disassemble, puncture the outer packaging, or modify the battery (battery pack)	To avoid short circuits, resulting in leakage or fire
8. Keep unused batteries in their original packaging, away from metal objects that may cause a short circuit	To avoid short-circuiting, causing discharge, leakage, explosion, and personal injury
9. Do not crush, puncture, or otherwise damage the battery	To avoid battery discharge, leakage, explosion, and personal injury
10. If the battery exhibits abnormal phenomena such as leakage or discoloration, stop using it	To avoid accidents
11. Do not throw or subject the battery to strong impact	To avoid causing battery leakage, heating, rupture, or fire

12. Try to avoid using batteries under high temperature and high humidity conditions	To avoid premature battery damage
13. a. Please use within the temperature range of 0~40°C b. Please store within the temperature range of 20±5°C	a. Outside this range, the battery may leak or heat up, affecting performance and shortening battery life b. Outside this range, battery performance may be affected and battery life shortened
14. Do not mix new and used batteries	To avoid battery over-discharge leading to discharge, leakage, explosion, and personal injury
15. Do not mix with batteries of different types or brands	To avoid battery heating, leakage, explosion, or fire
16. If electronic devices are not in use for a long time, remove the batteries	To avoid batteries exceeding storage period and leaking, damaging electronic devices
17. Exhausted batteries should be removed from electronic devices immediately	Discharged batteries left in electronic devices for a long time may leak, causing device damage and personal injury
18. Keep batteries out of reach of infants and young children	To avoid accidental swallowing; if swallowed, seek immediate medical attention
19. Do not allow children to replace batteries independently	To avoid operational errors or accidents
20. Use the battery within its specified shelf life/storage period	To avoid using expired products
21. Do not touch batteries directly with bare hands; wear gloves when handling	To avoid battery rusting
22. Do not use metal pliers to handle batteries; use plastic/insulated pliers	To avoid short circuits, heating, leakage, or explosion

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Canales oficiales Web: www.powercell.pe | Email: ventas@powercell.pe

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