

ULTRA MAX[®]

LR14 ALKALINE DRY BATTERY TECHNOLOGY SPECIFICATION

LR14

Customer confirmation	Checked	
	Approved	
	Corporate name	
	Corporate seal	

Signed : _____

Drafted : _____

Approved : _____

Document No. : _____

Edit : _____

1. SCOPE

This specification defines the technical requirements for LR14 Alkaline cells distributed by Baruch Enterprises Ltd. If not otherwise specified, the technical requirements and dimensions for cells should meet or exceed the requirements of GB/T 8897.1-2003, GB8897.2-2005.

2. REFERENCE DOCUMENTS

GB8897.1-2003(IEC 60086-1:2000, IDT) Primary batteries-Part1: General.

GB8897.2-2005(IEC 60086-2:2001, MOD) Primary batteries-Part 2: Physical and Technological Specifications.

GB8897.5-2006(IEC 60086-5:2005, MOD) Primary batteries-Part 5: Safety of batteries with aqueous electrolyte.

3. CHEMICAL SYSTEM, VOLTAGES AND DESCRIPTION

3.1 Chemical system: Alkaline manganese battery

Alkaline electrolyte-zinc-manganese dioxide (mercury & cadmium free)

3.2 Nominal voltage: 1.5V

3.3 Description

IEC: LR14

JIS : AM-2

ANSI : C

4. NOMINAL AVERAGE BATTERY WEIGHT AND CAPACITANCE

4.1 Battery Weight: 60g (Avg)

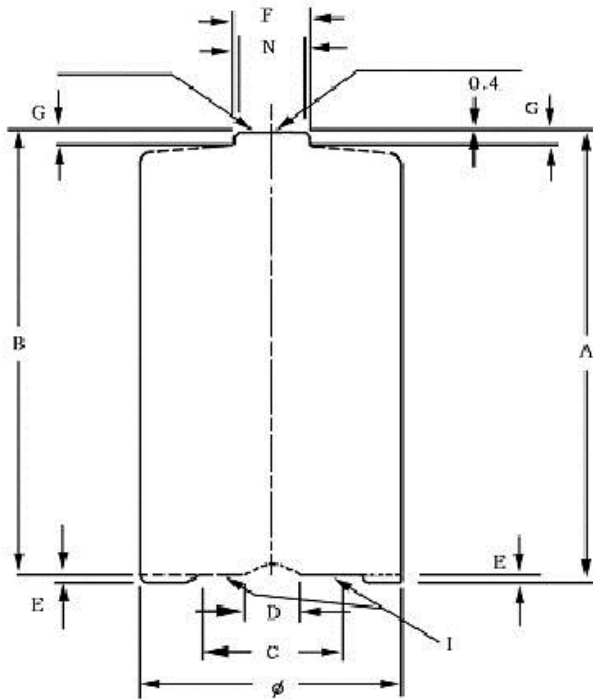
4.2 Capacitance: 6200mAh (6.8Ω, 24hrs/d, 20°C, 0.9V CUT OFF)

5. HEAVY METAL CONTENTS (2006/66/EC)

Hg Content: ≤1ppm, Cd Content: ≤10ppm , Pb Content: ≤40ppm

6. LR14 BATTERY DIMENSIONS

The batteries meet dimensions of the attached drawing:



Unit: MM		
SIZE	LR14	
Measure No	Max	Min
A	50.0	
B		48.6
C		13.0
E	0.9	
F	7.5	
G		1.5
Ø	26.2	24.9

7. STORAGE CHARACTERISTICS

- (1) After 12 Months Storage At $20\pm 2^{\circ}\text{C}$, 90% Capacitance Of Fresh Cells
- (2) After 24 Months Storage At $20\pm 2^{\circ}\text{C}$, 85% Capacitance Of Fresh Cells
- (3) After 36 Months Storage At $20\pm 2^{\circ}\text{C}$, 75% Capacitance Of Fresh Cells

8. ELECTRICAL CHARACTERISTICS[3.9Ω (PRECISION $\pm 0.5\%$), 0.3S, $20\pm 2^{\circ}\text{C}$]

	OCV(V)	CCV(V)	SHORT-CIRCUIT CURRENT(A)
Initial	1.59	1.52	10.0
After 12 Months	1.56	1.45	7

OCV measurement: The inner resistance of Voltage Meter is above $1\text{M}\Omega$

CCV measurement: After 0.2 ± 0.01 second by $R=2.2\Omega$.

SCC measurement: $\pm 0.5\%$.

9. DISCHARGE CAPACITY (SAMPLES: 9PCS, 20±2°C, RH:45%-75%)

Load	3.9Ω	3.9Ω	6.8Ω
Discharge Mode	4min/h,8h/d	1h/d	1h/day
End Voltage	0.9V	0.8V	0.9V
Average Duration (Initial)	17h	18h	31h
IEC	770min	12h	23h

(1) The word “initial” is applicable to the products elapsed one month or less after production, including those, to which tests have been started in less than two months after production.

10. LEAKAGE RESISTANCE CHARACTERISTICS

(1) Over Discharge Leakage Test

	Test Conditions	Sample Size	Test Method	Requirement	Criterion
Over Discharge	20±2°C, RH:60±15% 20±2°C, :	9PCS	3.9Ω Continues Discharge 48h	No Visible Leakage and Overall Height: No Higher than Max Height (50.0)0.2m	0/9

(2) High Temperature Leakage Test

	Test Conditions	Sample Size	Test Method	Requirement	Criterion
High Temperature	60±2°C, RH:90±5% 60±2°C,	40PCS	Store 20 days under test conditions, then store 4~24 hrs under 20±2°C, rh 60±15%.	No Visible Leakage and Overall Height No Height than Max Height 0.2mm	0/40

(3) 45°C Dry Storage	Test Conditions	Sample Size	Requirement	Acceptance
45°C Dry Storage	Stored For 12 Weeks At 45°C	20PCS	No Leakage	Ac=0, Re=1

11. SECURITY CHARACTERISTICS

(1) Short Circuit Explosion-Proof Characteristics

	Test Conditions	Sample Size	Test Method	Requirements	Criterion
Short Circuit Explosion-Proof	20±2°C, RH:60±15% 20±2°C,	10PCS	24 hr short-circuit under test conditions	Negative Terminal No Departure From Battery Body	0/10

(2) Recharge Explosion-Proof Characteristics

	Test Conditions	Sample Size	Test Method	Requirement	Criterion
Recharge Explosion-Proof	20±2°C, RH:60±15% 20±2°C,	10PCS	Recharge 24h With 400mA Current 400mA	Negative Terminal No Departure From Battery Body	0/10

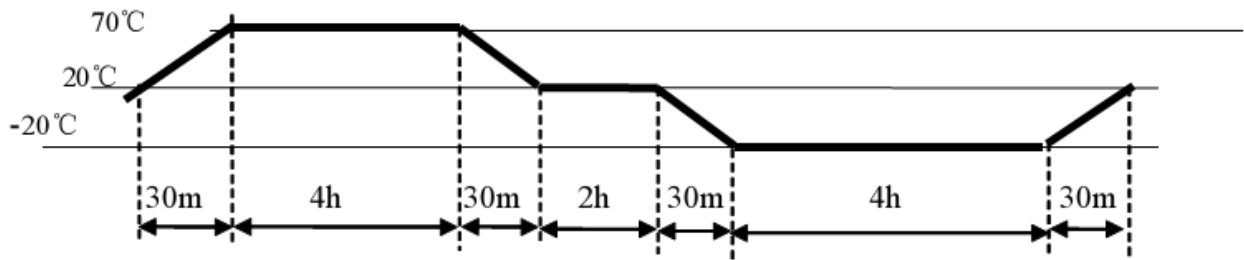
11. SAFETY REQUIREMENT

	Test Conditions	Sample	Requirement	Acceptance
Partial Use	Stored at 45±2°C for 30 days after un-discharged batteries were test discharged	5PCS	No leakage; No explosion	Ac=0, Re=1

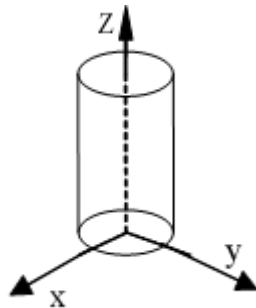
	3.9Ω24h/d,EPV=1.0V. 3.9Ω			
Thermal Shock	See the following note1, Total 10 cycles.	5PCS	No leakage; No explosion	Ac=0, Re=1
Incorrect Installation	Place three un-discharged and unconditioned batteries in a series with one test sample battery reversed; complete the circuit until vent activation or until the temperature of the reversed battery returns to ambient.	5pcs	No explosion	Ac=0, Re=1

	Test Conditions	Sample	Requirement	Acceptance
Free Fall	Drop each un-discharged battery two times, oriented in each of three mutually perpendicular face(six total)from a height 1 meter, onto a concrete surface, see the following note2	5PCS	No explosion	Ac=0 Re=1
Over discharge	Discharge one test sample batter(C1)with 43Ω resistance load until EPV is 0.6V, connect three un-discharged batteries and the sample battery in series with a 20Ωresistance load (R1)as shown in note3, maintain the circuit until the CCV of the series string reaches 2.4V	5PCS	No explosion	Ac=0 Re=1

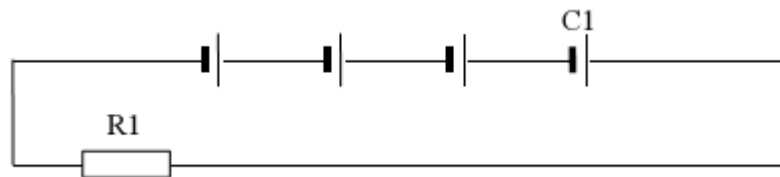
Note1: Thermal Shock



Note 2: Free Fall



Note 3: Overcharge



13. INSPECTION RULES

14.1 Deliver inspection: Depending on GB2828

Number	Test	Item	IL	AQL
1	Dimensions	5	S-2	0.4
2	Appearance	-	II	1.0
3	Service Output	7	-	-
4	Open-circuit Voltage	6	II	1.0

Routine inspection: Depending on GB2829

14. INSTRUCTION FOR USE

14.1 Always select correct size and grade of battery most suitable for intended use.

14.2 Replace all batteries of a set at the same time

14.3 Clean the battery contacts and also those of the equipment prior to battery installation

14.4 Ensure that batteries are installed correctly with regard polarity (+ and -)

14.5 Remove batteries from equipment which is not be used for an extend period of time

14.6 Remove exhausted batteries promptly

15. DISPLAY AND STORAGE

15.1 Battery shall be stored in well-ventilated dry and cool conditions

15.2 Battery cartons should not be piled up in several layers, or should not exceed a specified height.

15.3 Batteries should not be exposed to direct sun ray for a long time or placed in areas where they get wet by rain

15.4 Do not mix unpacked batteries so as to avoid mechanical damage and / or short circuit among each other

16. EXPIRY PERIOD: 3 YEARS

17. EXPIRY PERIOD MARKING:

(1) Production date marked on the bottom plate of finished cells. For example: 2001-01 means produced on jan.2001. Shelf life 3 years marked on bottom of sticker label.

(2) For private label, can mark according to customers' requirements.

18. LABEL AND PACKING

We have registered trademark "ULTRA MAX" in English, OEM、ODM welcome, can design according to customer's requirement.