

# Product Specification

## 1. APPLICABILITY

This specification is applicable to "Cardio Cell" GBT alkaline cell, LR20 (No mercury added).

## 2. GENERAL

### 2.1 Type designation

IEC LR20  
 JIS AM-1  
 ANSI D

### 2.2 chemical system

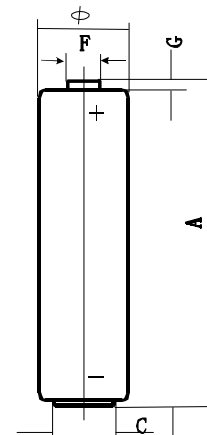
Zn/KOH-H<sub>2</sub>O/MnO<sub>2</sub>

### 2.3 Nominal voltage: 1.5 V

### 2.4 Weight: approximate 140g

### 2.5 Dimension(mm)

| / | min  | max  |
|---|------|------|
| • | 33.0 | 34.0 |
| A | 59.6 | 61.0 |
| C | 26.0 | 27.0 |
| F | 8.0  | 9.0  |
| G | 2.5  | 3.0  |



### 2.6 Heavy Metal Contents

| Hg    | Cd    | Pb     |
|-------|-------|--------|
| <1ppm | <3ppm | <30ppm |

### 2.7 capacity

approximate 14500mAh (10•,24h/d, 20•, e.v.:0.9V)

## 3. APPEARANCE

There shall be no dirt, scratch or deformation detrimental to practical service in appearance.

## 4. ELECTRICAL CHARACTERISTICS (1.0•, 0.3S, 20±2•)

| /              |        | OCV(V) | CCV(V) | SC(A) (reference) |
|----------------|--------|--------|--------|-------------------|
| Initial        | Min    | 1.57   | 1.30   | 7.0               |
|                | Normal | 1.60   | 1.50   | 12.0              |
| Storage 1 year | Min    | 1.55   | 1.20   | 5.5               |
|                | Normal | 1.57   | 1.35   | 9.0               |

Note: storage condition: 20±5°C, RH: 45%-75%

## 5. SERVICE OUTPUT

| Load           |        | 2.2•   | 2.2•        | 2.2•  | 3.9•   | 10•   |
|----------------|--------|--------|-------------|-------|--------|-------|
| Test mode      |        | 24h/d  | 4min/h,8h/d | 1h/d  | 1h/d   | 4h/d  |
| end voltage    |        | 0.9V   | 0.9V        | 0.8V  | 0.9V   | 0.9V  |
| Initial        | MAD    | 18.0 h | 20.0h       | 22h   | 38.0 h | 122 h |
|                | Normal | 19.0 h | 21.5h       | 24h   | 41.5 h | 125h  |
| Storage 1 year | MAD    | 17.0 h | 18.0h       | 20h   | 36.5 h | 119 h |
|                | Normal | 18.3 h | 19.5h       | 22.5h | 39.5 h | 122h  |

Note: storage condition: 20±5°C, RH: 45%-75%

## 6. LEAKAGE RESISTANCE

(1) over discharge leakage test

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samples: 9pcs

test conditions: 20±2 • RH 60±15% • 2.2 • continuous discharge 48h

requirement: no visible leakage and overall height no higher 0.2mm than max height(61.5).

criterion: 0/9

(2) high temperature leakage test

samples: 40pcs

test conditions: store 20 days under 60±2 • &RH 90±5%, then store 4~24 h under 20±2 • &RH 60±15%.

requirement: no visible leakage and overall height no higher 0.2mm than max height (61.5) .

## 7. SECURITY CHARACTERISTICS

(1) short-circuit explosion-proof characteristics

samples: 10pcs

test conditions: 24h short-circuit under 20±2 • , RH 60±15%.

requirement: negative terminal no departure from battery body.

criterion: 0/10

(2) recharge explosion-proof characteristics

samples: 10pcs

test conditions: 20±2 • , 60±15%, recharge 24h with 400mA current.

requirement: negative terminal no departure from battery body

criterion: 0/10

## 8. DISCHARGE CURVE(*Reference*)

2.2 • continuous • 2.2 • pulse • 2.2 • • 3.9 • intermittent (encl.page.1)

## 9. EXPIRY PERIOD:

7 years

## 10. EXPIRY DATE MARKING:

(1) production date marked on the bottom plate of finished cells . for example: 2004-01 means produced on jan. , 2004. shelf life 3 years marked on bottom of sticker label.

(2) for private label, can mark according to customer's requirements.

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