



AceOn Plus Alkaline D

LR20 · 1.5V high-power alkaline cell

A high-drain zinc-manganese dioxide primary cell for everyday and demanding devices — from portable stereos and lanterns to motorised toys and professional field equipment. Mercury and cadmium free, with a five-year shelf life.

1.5v

NOMINAL

18000mAh

CAPACITY

5yr

SHELF LIFE

KEY FEATURES



High-drain capable

24.5 hours at 2.2 Ω, 1 h/d to 0.8 V.



18,000 mAh

At 25 mA, 24 h/d, 20 °C to 0.8 V end voltage.



Mercury & cadmium free

Hg ≤ 0.0001%, Cd ≤ 0.0010%, Pb ≤ 0.0040%.



Leak resistant

No leakage after 20 days at 60 °C or over-discharge to 0.6 V.



Five-year shelf life

Expiry date coded on every cell.



IEC & EU compliant

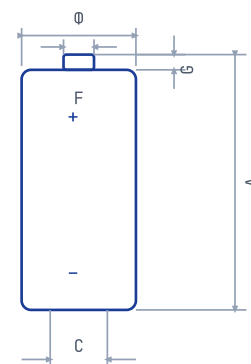
IEC 60086 · GB/T 8897 · (EU) 2023/1542.

KEY SPECIFICATIONS

AceOn part number	PALK-CB0-1207	Chemical system	Zn / KOH-H ₂ O / MnO ₂
IEC / JIS / GB type	LR20	Nominal voltage	1.5 V
ANSI type	13A · 13AC	Nominal capacity	18000 mAh
Common names	D · AM1 · 1#	Diameter	32.3-34.2 mm
Weight	approx. 142.3 g	Height	59.5-61.5 mm
Operating temp	-18 to +50 °C	Shelf life	5 years

DIMENSIONS (MM)

REFERENCE	MIN	MAX	FEATURE
Φ	32.3	34.2	Overall diameter
A	59.5	61.5	Overall height
C	18.0	—	Negative contact diameter
F	—	9.5	Positive cap diameter
G	1.5	—	Positive cap height



ELECTRICAL CHARACTERISTICS

Unless otherwise stated, all measurements are performed at 20 °C $\pm$ 2 °C and 55 +20 / –40% RH. Samples are normalised for at least eight hours in those conditions before measurement. Voltage is read on a digital voltmeter accurate to 1 mV with internal resistance of at least 1 M Ω ; total circuit load resistance is within $\pm$ 0.5% of the specified value.

OPEN- AND CLOSED-CIRCUIT VOLTAGE

CONDITION	GRADE	OCV (V)	CCV (V)	SHORT CIRCUIT (A)
Initial	Normal	1.60	1.38	12.0
Initial	Minimum	1.57	1.30	7.5
Stored 1 year	Normal	1.57	1.30	9.0
Stored 1 year	Minimum	1.55	1.20	5.5

Load resistance 1.0 Ω , 0.3 s. Short-circuit current is given for reference.

SERVICE OUTPUT

LOAD	2.2 Ω	600 mA	2.2 Ω	2.2 Ω
Test mode	24 h/d	2 h/d	1 h/d	4 m/15 m 8 h/d
End voltage	0.9 V	0.9 V	0.8 V	0.9 V
Unit	h	h	h	h
Application	Reference	Portable stereo	Toy	Portable lighting
Initial · Normal	19.0	16.5	24.5	22.5
Initial · MAD	17.5	15.0	22.5	21.0
Stored 1 year · Normal	18.0	15.5	23.0	22.0
Stored 1 year · MAD	17.0	14.0	20.5	20.0

s: second • m: minute • h: hour • d: day

1) The initial discharge test commences within 30 days of manufacture; stored cells are held at 20 $\pm$ 2 °C and 55 +20 / –40% RH.

2) Lot release testing is by 2.2 Ω continuous discharge to 0.9 V.

3) MAD: minimum average duration-our guarantee discharge value.

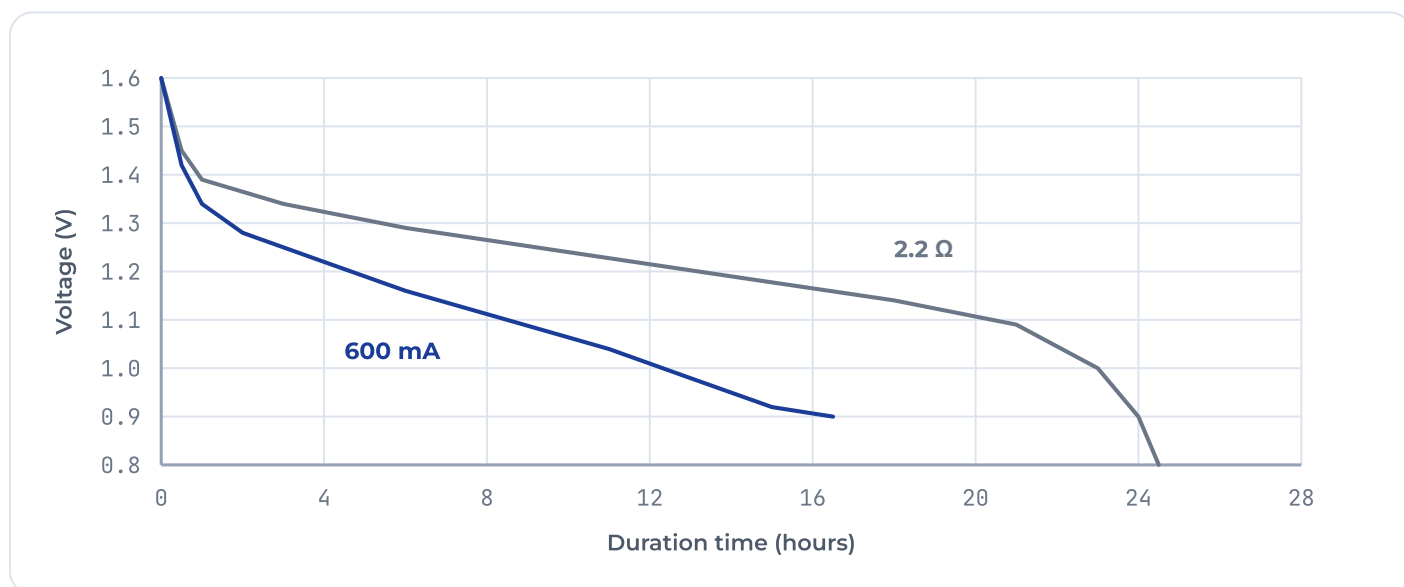
Recommended operating temperature: +10 °C to +35 °C

MATERIAL DATA SHEET

MATERIALS	% OF TOTAL WEIGHT	CAS NO.	MATERIALS	% OF TOTAL WEIGHT	CAS NO.
Manganese dioxide (MnO ₂)	~41.8	1313-13-9	Brass	~0.8	12597-71-6
Zinc powder (Zn)	~17.4	7440-66-6	Fe	~16.3	7439-89-6
Water (H ₂ O)	~10.9	7732-18-5	Ni-plating	~0.2	7440-02-0
Potassium hydroxide (KOH)	~7.0	1310-58-3	Nylon	~1.4	/
Carbon	~3.4	7782-42-5	Fiber	~0.8	/

DISCHARGE DIAGRAM

— 600 mA • 2 h/d — 2.2 Ω • 1 h/d



LEAKAGE RESISTANCE

Over-discharge leakage

20 ±2 °C, 55 ±20 / -40% RH, 2.2 Ω continuous discharge to 0.6 V. Eight cells tested; requirement is no leakage and no explosion.

High-temperature leakage

Stored 20 days at 60 ±2 °C, then 4-24 h at standard conditions. Twenty-four cells tested; requirement is no leakage and no explosion.

SECURITY CHARACTERISTICS

User drop test

Simulates a cell being accidentally dropped. Undischarged cells are dropped from 1 m onto a concrete surface six times — twice in each of the three axes — then stored for 1 h. Five cells per set. Requirement: no fire or explosion; leakage is allowable.

Short-circuit

Simulates an external short circuit during daily handling. The positive and negative terminals of an undischarged cell are connected directly for 24 h, or until the case returns to ambient, with interconnecting resistance no greater than 0.1 Ω . Five cells. Requirement: no fire or explosion; leakage is allowable.

Incorrect installation

Simulates incorrect installation in a series application. Four undischarged cells per test: three placed correctly in series, the fourth reversed in polarity. The circuit is maintained until venting occurs or the reversed cell returns to ambient. Five sets, 20 cells. Requirement: no fire or explosion; leakage is allowable.

STANDARDS & COMPLIANCE

IEC 60086-1

IEC 60086-2

IEC 60086-5

GB/T 8897.1

GB/T 8897.2

GB 8897.5

(EU) 2023/1542

94/62/EC

PACKAGING

Combined lead, cadmium, mercury and hexavalent chromium concentration in packaging materials and printing inks does not exceed 100 ppm, and no ozone-depleting substances are used in manufacture. Printing on each cell label is legible and permanent. Shipping and retail packaging otherwise follows the specification agreed with the customer.

Appearance

Inspected by unaided eye at 30 cm. Cells are free from dents, scratches, rust, extruded internal compounds and serious artwork displacement.

STORAGE & STOCK ROTATION

Conditions

Clean, cool, dry, ventilated and weatherproof. Hold between +10 °C and +25 °C, never above +30 °C, at below 60% RH. Avoid sustained humidity above 95% or below 40% RH.

Placement

Do not store next to radiators or boilers, or in direct sunlight.

Stacking

Stack height depends on pack strength: as a guide, no more than 1.5 m for cardboard packs or 3 m for wooden cases.

PRECAUTIONS IN HANDLING

Used correctly, primary cells with aqueous electrolyte are a safe and dependable source of power. Misuse or abuse may result in leakage or, in extreme cases, fire or explosion.

Observe polarity

Insert cells according to the + and – marks on the cell and the equipment. Cells placed incorrectly may be short-circuited or charged, causing rapid temperature rise, venting, leakage, explosion and personal injury. Where four cells are used in series and one is inverted, the inverted cell leaks because it has been charged.

Check before use

Confirm the terminals on both the cell and the appliance are undamaged, unbent, clean and free of moisture or foreign matter, to avoid poor contact and short circuits.

Remove exhausted cells

Take discharged cells out of equipment immediately and dispose of them properly. Left in place, they may leak and damage the appliance or cause injury.

Never heat, dismantle or recharge

Do not expose cells to heat or dispose of them in fire. Do not dismantle, charge, force-discharge, weld or solder directly to cells. Doing so may cause leakage or explosion and personal injury.

Do not short-circuit

Loose cells carried with keys or coins can short-circuit, which may cause venting, leakage, explosion and personal injury. Keep unused cells in their original packaging away from metal objects; do not stack or jumble unpacked cells, and use designated containers for transport and storage.

Do not mix cells

Replace all cells at the same time with new cells of the same brand and type. Mixing brands, types, or old and new cells can over-discharge some of them through differences in voltage or capacity, causing venting, leakage and explosion.

Keep away from children

Children should not replace cells without adult supervision. A swallowed cell may cause chemical burns and other injuries — seek medical attention immediately.

GUIDANCE FOR APPLIANCE DESIGN

Clearly indicate the cell type to use, the correct polarity alignment and the direction of insertion. Design the compartment so cells cannot be installed incorrectly or, if they are, make no electrical contact.

The compartment should accept only cells of the specified size and form proper contact with them.

Contacts should be strongly conductive, corrosion resistant, resistant to oxidation and elastic — nickel-plated stainless steel is suitable. Shapes must not short the cell: springs should not pierce the jacket and bridge positive to negative. The negative end of the compartment needs a boss that contacts the cell fully.

Keep water out of the compartment to prevent rusting of the cell and contacts, make it difficult for children to open, and isolate it from heat generated by the appliance.

Expiry date marking

Each cell carries an expiry date code — YYYY-MM for domestic supply, MM-YYYY for export.

Talk to us

AceOn Group, Telford, Shropshire · aceongroup.com. For volume pricing, private label or bespoke packaging, contact our team.