CARDIOCELL®

PRODUCT DATASHEET
Alkaline Plus Mignon LR6

Specifications

Chemical system	zinc-manganese dioxide (free of Hg, Cd and Pb)
Voltage	1.5 V
Capacity (mAh)	2,600 (43 Ω, 24 h/d, 0.9 V)
Dimensions of battery (mm)	Ø 13.5 - 14.5, Height 49.2 - 50.5
Weight	24.0 g
Design	CARDIOCELL
Standards/certifications	IEC, ANSI, JIS
Dangerous goods	no

CARDIOCELL Alkaline Plus Mignon LR6

Type designation

IEC = LR6 JIS = AM3 ANSI = AA

Chemical system

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

Dimensions

Diameter = 13.5 - 14.5, Height = 49.2 - 50.5

Weight

The weight of each battery is approx. 24.0 g.

Heavy metal content (%)

Mercury: ≤ 1 ppm, Cadmium ≤ 10 ppm, Lead ≤ 40 ppm

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.

Supplier TTT-Filmservice e.K. · Wannenäckerstraße 47, 74074 Heilbronn, Germany
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August 2015

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Battery capacity

Test environment = 20 °C +/- 2.6 %; 15 % R. H.
Load resistance = 43 ohms; daily period 24 h/d; cut-off voltage 0.9 V
► The capacity of each battery is approx. 2,600 mAh

Storage characteristics

After 12 months at 20 °C ► 90 % capacitance of fresh cells
After 24 months at 20 °C ► 85 % capacitance of fresh cells

Electrical characteristics

Test environment = 20 °C +/- 2.6 %; 15 % R. H.
Load resistance = 3.9 ohms; measure time 0.3 s)
All samples shall be normalized for a minimum of 8 hours at the above environment prior to measurement.

	OCV (V)	CCV (V)	SCC (A)
initial	≥ 1.59	≥ 1.45	≥ 10
after 12 months storage	≥ 1.57	≥ 1.43	≥ 8

OCV = open circuit voltage; CCV = close circuit voltage; SCC = short circuit current

Discharge test (service life)

Test environment = 20 °C +/- 2.45 %; 75 % R. H.

load resistance	**10Ω**	**24Ω**	**3.9Ω**	**10Ω**	**43Ω**	**1,00 mA**
daily period	24 h/d	pulse	1 h/d	1 h/d	1 h/d	10 s/min 1 h/d
cut-off voltage	0.9 V	1.0 V	0.8 V	0.9 V	0.9 V	0.9 V
initial	≥ 19.0 h	≥ 43.0 h	≥ 7.0 h	≥ 19.0 h	≥ 90 h	≥ 350 times
after 12 months storage	≥ 18.0 h	≥ 40.0 h	≥ 6.5 h	≥ 18.0 h	≥ 85 h	≥ 320 times
application	-	control	motor, toy	tape recorder	radio	camera, flash light

The initial discharge test shall commence within 30 days of manufacture.
The discharge time is the minimum average duration (MAD).
Test quantity: n = 9 pcs. per discharge test

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Discharge curves

1)	10 Ω - 24 h/d - to 0.9 V	▶	continuous discharge curve (App. 1)
2)	10 Ω - 1 h/d - to 0.9 V	▶	intermittent discharge curve (App. 1)
3)	3.9 Ω - 1 h/d - to 0.8 V	▶	intermittent discharge curve (App. 1)
4)	24 Ω - 15 s/min, 8 h/d - to 1.0 V	▶	pulse discharge curve (App. 2)
5)	43 Ω - 4 h/d - to 0.9 V	▶	intermittent discharge curve (App. 2)
6)	1,000 mA - 10 s/min, 1 h/d - to 0.9 V	▶	pulse discharge curve (App. 2)

Leakage-proof structure

1) The top seal is made of imported special nylon from DUPONT, has a much stable vent pressure.
2) The sealing location of the battery is provided with double beading scores to make the structure tighter.
3) Using imported special sealing glue with more reliable leakage-proof performance.

Safety test

Test environment = 20 °C +/- 2.6 %; 15 % R. H

Test item	Test method	Test pcs.	Requirements
Over-discharge leakage test	10 Ω - 24 h/d - 48 hours	9	no leakage
	3.9 Ω - 4 min, 8 h/d - to 0.6 V	9	no leakage
	1,000 mA - 10 s/min, 1 h/d - to 0.6 V	9	no leakage
	10 Ω - 1 h/d - to 0.6 V	9	no leakage
	43 Ω - 4 h/d - to 0.6 V	9	no leakage
	24 Ω - 15 s/min, 8 h/d - to 0.6 V	9	no leakage
High temperature test	60 +/- 2 °C, 90 +/- 5 % R. H. After 20 days of storage the cells shall be stored in an ambient temperature of 20 +/- 2 °C, 60 +/- 5 % R. H. for 4-24 hours.	40	no leakage
1 pc. of battery, short-circuit test	The terminal of an un-discharged battery is connected by wire. The circuit is completely for 24 hours or until the case temperature has return to environment.	10	no leakage, no explosion
Reversible charge	4 pcs. 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 is discharged at 43 Ω to 0.6 V, then in series connected with 3 pcs. of new battery with 20 Ω for 24 hours.	36	no explosion
4 pcs. of battery in series short circuit test	The terminal of 4 pcs. of battery is connected by wire. The circuit is completely for 24 hours or until the case temperature has return to environment.	40	no explosion
Free fall test	The battery free drops from 1 meter height for 6 times, then stored for 1 hour.	10	no explosion
Impact under high and low temperature	Un-discharged battery stored in test box under 70 +/- 2 °C for 24 hours, then changed to -20 °C for 24 hours, repeat the above condition for 10 cycles.	20	no explosion
Storage after partial discharge	50 % discharged battery stored under 45 +/- 5 °C for 30 days	9	no leakage no explosion

Expiry period marking

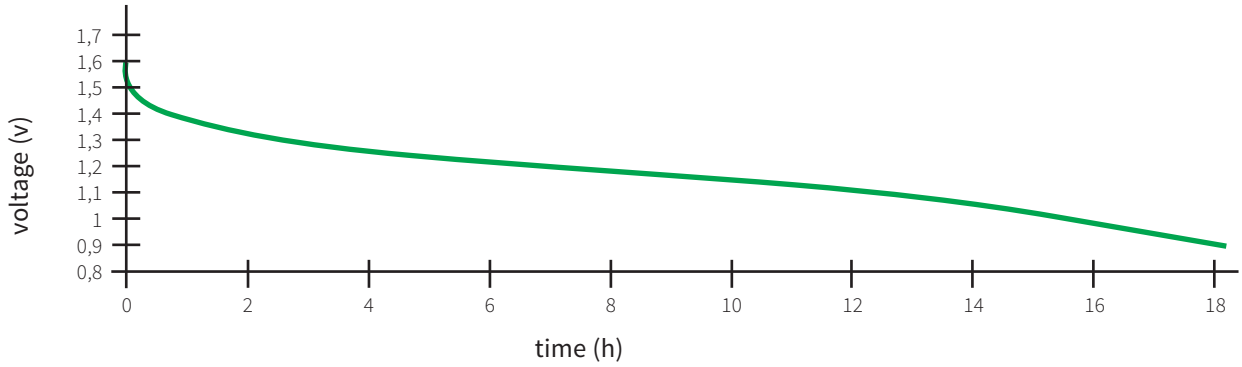
7 years

Expiry period marking

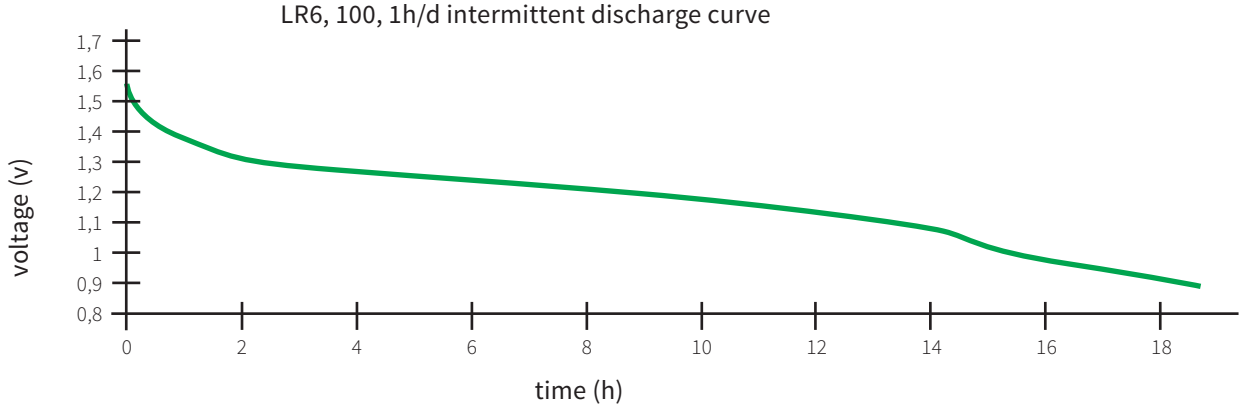
For example: 08-2015 means the expiry date is August 2015.

Appendix 1

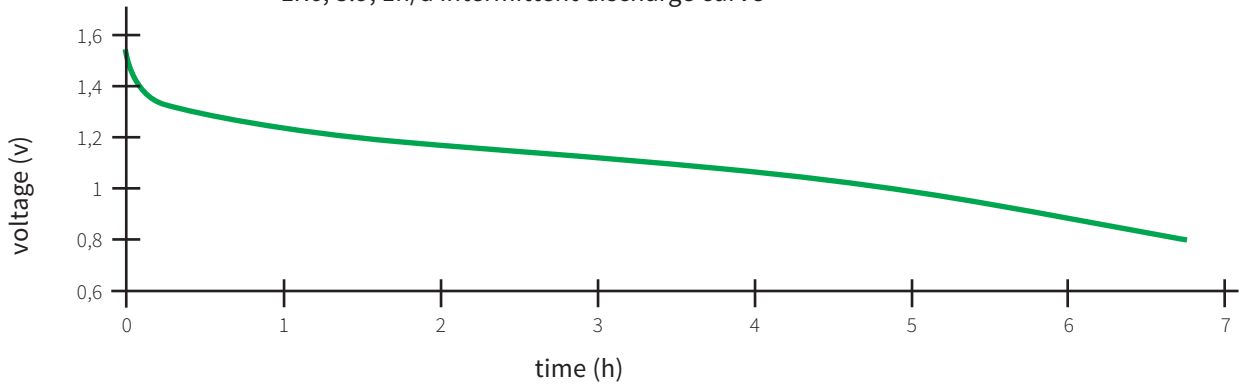
LR6, 24h/d continuous discharge curve



LR6, 100, 1h/d intermittent discharge curve

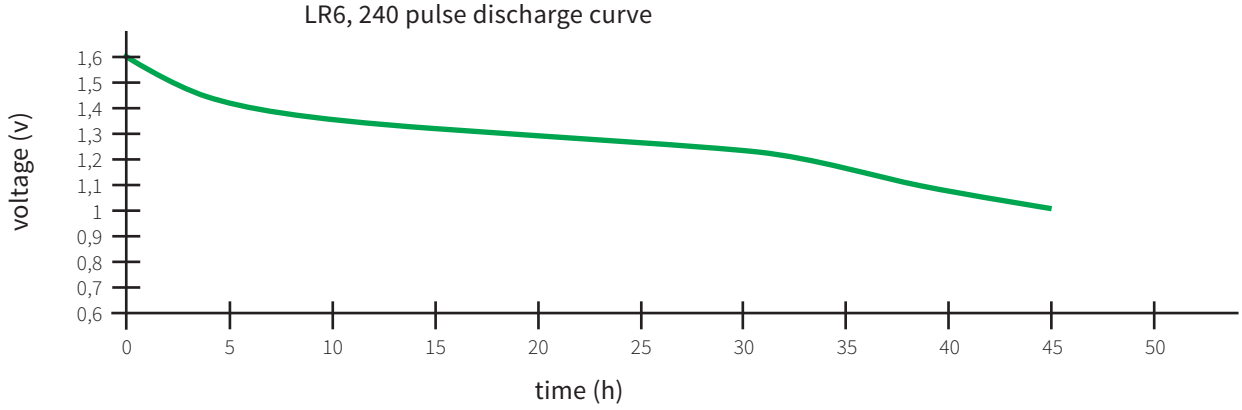


LR6, 3.9, 1h/d intermittent discharge curve

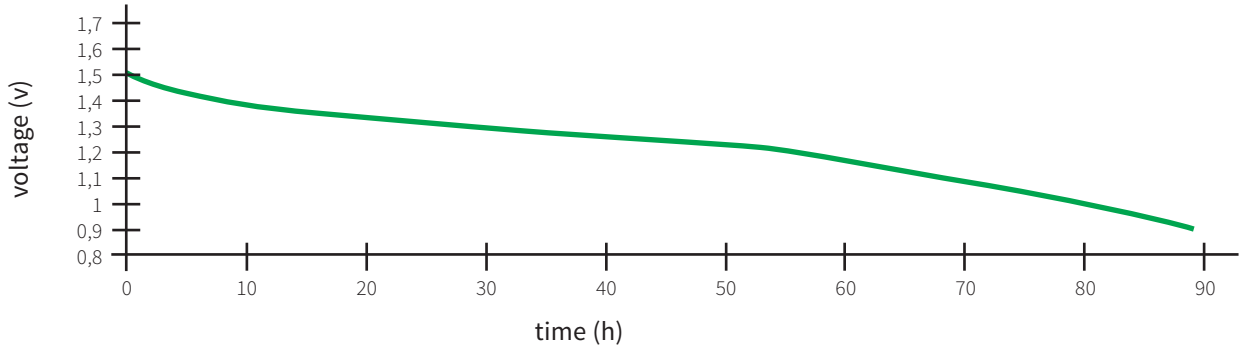


Appendix 2

LR6, 240 pulse discharge curve



LR6, 430, 4h/d intermittent discharge curve



LR6, 1000mA pulse discharge curve