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Specification

Product Specification

Name：	Ni-Cd Rechargeable Battery
Model:	C2500mAh
Author:	
Review:	
Approval:	
Date:	2021/06/08

1 APPLICATIONS

The specification applies to the following sealed Ni-CD rechargeable battery.

TYPE:C2500mAh(H) APPLICATION： Emergency light , flashlight Etc.

2 WORKING THEORY

At the positive electrode: $2NiOOH+2H_2O+2e \rightleftharpoons 2Ni(OH)_2+2OH^-$

At the negative electrode: $Cd+2OH^--2e \rightleftharpoons Cd(OH)_2$

Overall reaction： $Cd+2NiOOH+2H_2O \rightleftharpoons 2Ni(OH)_2+Cd(OH)_2$

3 BATTER MODEL

3.1 Type:Sealed Ni-CD rechargeable battery

3.2 Number:C2500

3.3 Specification: C2500

4 ELECTRICAL PERFORMANCE

4.1 Nominal voltage： 1.2 V。

4.2 Nominal Capacity:2500mAh/0.2C_5A

4.3 Battery Weight: 66.10g(unit cell)

4.4 Standard charge： 250mA (0.1C_5A) × 15hours

4.5 Normal charge： 500mA (0.2C_5A) × 7hours

4.6 Trickle charge： 75～125mA (0.03C_5A～0.05C_5A)

4.7 Quick charge： 1000mA (0.4C_5A) × 180min

4.8 Operate temperature range :(Max relative humidity:85%)

Standard charge： 0～＋45℃

Quick charge： 0～＋45℃

Trickle charge： 0～＋45℃

Discharge： -18～＋55℃

4.9 Storage temperature range (Max relative humidity:85%)

Within a week －20～＋45℃

Within a month: －20～＋45℃

Within six months: －20～＋45℃

Within two years: －20～＋35℃

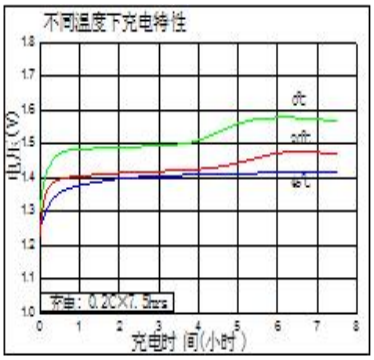
5 Configuration and dimensions

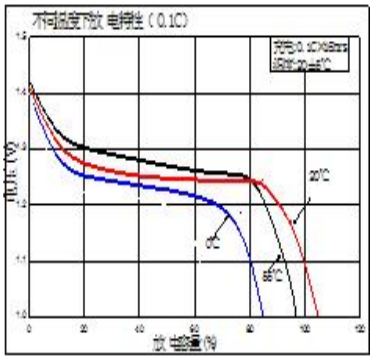
Specification: C2500

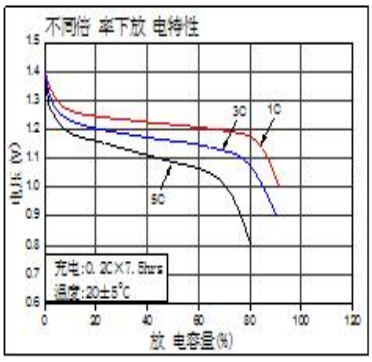
Performance

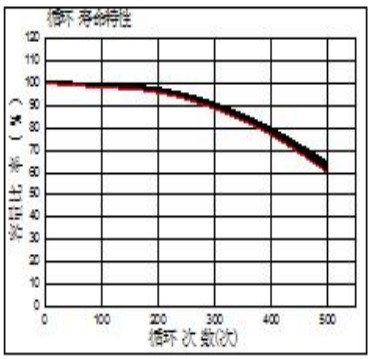
Nominal voltage			1.2V	
Capacity (mAh)	2500		0.2C[1]	1C[2]
	Minimum		2500	2250
diameter			25.8+0 -1.0 mm	
height			50.0+0 -1.5 mm	
weight[3]			About66.10g	
resistance (1000Hz.)			≤15mΩ(After charging)	
charging	standard		0.1 C_5A	
	fast		0.4C_5A	
	purling	MAX	0.05C_5A	
		MIN	0.03C_5A	
Environment temperature	charging	standard[4]	0℃~55℃	32~131 ºF
		fast[5]	0℃~55℃	32~131 ºF
	discharge[6]		-18℃~55℃	-0.4~131 ºF
	storage	Six months	-18℃~45 ℃	-0.4~113ºF
		Two years	-18℃~30 ℃	-0.4~86ºF

C 2500mAh

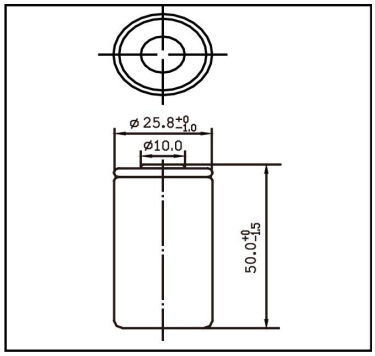








Shape dimension (after packing)



NOTE:

[1] 20 ℃ ambient temperature ,0.1C charging15 hourS, rest 1 hour , discharge by 0.2c to 1.0V/cell

[2] weight for reference

[4] 0.2C charging 7 hourS

[5] 0.4C charging 180 minutes、-ΔV=15mV、TOC＝45℃

[6]discharge by 0.2c to 1.0V/cel

6.Performance

6.1 Test Condition

Tests should be done within one month of delivery under the following conditions , before charging,the battery need discharge by0.2C_5A to 1.0v/CELL under test condition;

Temperature ： ＋20±5℃

Humidity ： 45%～85%

Note ： : standard charging methods：250 mA（0.1C_5A）charge 15hours

Normal charging methods：500 mA（0.2C_5A）charge7 hours

Standard discharge methods：500 mA（0.2C_5A）discharge 1.0v/CELL

6.2 Test method & performance

Test	Unit	**Specification**	**Conditions**	**Remarks**
Capacity	mAh	3000	standard charge and discharge	3 cycles are allowed
Shipment Voltage	V/cell	≥1.25		AQLⅡ=0.65%
Open Circuit Voltage	V/cell	≥1.3	Within 1 hour after standard charge	
Internal impedance	mΩ/cell	≤15		
Over charge	hour	≥5 No leakage or deformation	0.1C_5A charge for 48hours , rest 1 -4 hours , discharge to 1.0V/CELL by 0.2C_5A	End Voltage 0.8V/cell
Charge Retention	mAh	≥(65%CN)	Storage 28 days after stand charge , standard discharge	Ambient Temperature 20±2℃
Cycle life	Cycle	≥500	IEC61951-2(7.4.1.1.1)	Refer .to Note
Leakage test		No leakage or deformation	Fully charged at 250mA(0.1C_5A),then storage for 14 days	Ambient Temperature 20±5℃

Note: Cycle life { IEC61951-1(7.4.1. 1.1)}:

Before test , it need discharge to 1.0V/cell by 0.2I_tA, then test at 20±5℃Cambient temperature

cycle no.	charge	rest	discharge
1	0.1I_tAfor 16h	none	discharge 140 minutes by0.25I_tA :
2—48	0.25I_tAfor3h10min	none	discharge 140 minutes by0.25I_tA:
49	[a]	none	discharge to 1.0V/CELL by 0.25I_tA
50	0.25I_tAfor 3h10min 0.1I_tAfor16h	1to 4h	discharge to 1.0V/CELL by 0.2I_tA

Cycles 1 to 50 shall be repeated until the discharge duration on any 50 th cycle becomes less than 3 hThe total number of cycles obtained when the test is completed shall be not less than 500.。

6.3Storage

After a open-circuit storage of 12 months, the battery can be charged and discharged at 0.2C_5A～0.5C_5A immediately(this cycle allowed in five times). 0.2 C discharge capacity is not less than 80% of the initial capacity.

6.4 Vibration

The battery keep a normal performances when tested with the amplitude at 4 mm (0.158 inch) and the frequency at 1000.

6.5 Drop test

The battery shall keep a normal performances when dropped to the wooden board at a height of 450mm(17.716 inch).

6.6Safety performance

6.7 Over discharge

External resistance, make the battery a discharge 24 hours (external resistance (m Ω) = 1.2 V × n × 1000/2 C5A), battery no leakage and deformation.

6.8 Safety valve

Test method: 0.2 C5A discharge battery to 0 V, then increase the discharge current to 1.0 C5A, and keep 1 hour. The battery no burst, no explosion, allow the leakage and deformation.

6.9 Short circuit

Test methods: 1 C5A charging the battery 80 minutes,,Short circuit 1.0 hours. The battery no explosion, allow the leakage and deformation.

7 Other :

The battery recommended termination voltage of 1.0 V/cell only ,if over 1.1 v, it will can't effective use of capacity !

if under 1.0 V, it will lead to a over discharge or reverse charge !

8 SUGGESTION & ADVICE

8.01 Reverse charging is not acceptable .
8.02 Do not incinerate or mutilate batteries,
8.03 Do not solder directly to batteries.
8.04 Do not mix new batteries in use with semi-used batteries
8.05 If find any noise, excessive temperature or leakage from a battery, please stop using.
8.06 Keep away from children.
8.07 Store batteries in a cool dry place.
8.08 Use the suitable charger for batteries.