

Room 2703, Well Tech Centre 9 Pat Tat Street, San Po Kong, Hong Kong

Tel : (852) 2885 1100 Fax : (852) 2947 0588

# **SPECIFICATION**

Type:	Ni-Cd Cylindrical Cell		
Model No.:	IC-1400A		
Prepared:	CYL		
Approved:	LFX		
Date:	17 Oct, 2008		

IC-1400A Page 1 of 5



Room 2703, Well Tech Centre 9 Pat Tat Street, San Po Kong, Hong Kong

Tel : (852) 2885 1100 Fax : (852) 2947 0588

#### 1. **PREFACE**

This specification applies to the Intec Nickel-Cadmium Cylindrical batteries or battery packs. Intec reserves the right to alter the product design or amend this specification without prior notice.

#### 2. **TYPE**

The specification applies to the following sealed Nickel-Cadmium battery.

Type: <u>IC-1400A</u> Size: A

#### 3. **CHARACTERISTICS**

- ★ Nominal voltage: 1.2 V
- $\bigstar$  Nominal capacity: <u>1400</u> mAh(0.2C<sub>5</sub>)
- ★ Standard charge:  $\underline{\hspace{1cm}}$   $\underline{\hspace{1cm}$
- ★ Trickle charge: 45~70 mA
- $\bigstar$  Discharge cut-off voltage: 1.0 V/unit(20°C)
- ★ Max current of constant discharge: 4200 mA(20°C,unit cell)
- ★ Operating temperature range: (Max relative humidity: 85%)

-10 ~ +30°C Standard charge

Trickle charge 10 ~ +45℃

Quick charge 10 ~ +45℃

Discharge -20 ~ +60°C

# ★ Storage temperature range: (Max relative humidity: 85%)

Within two years -20 ~ +30°C

Within two months -20 ~ +45°C

Within one month -20 ~ +55°C

-20 ~ +65°C Within one week

#### 4. EXTERNAL DIMENSION/WEIGHT

4.1 Dimensions:  $\Phi 17.0\pm0.5 \times 49.0\pm0.5$  (mm);

4.2 Gross weight: <u>32</u> (g);

#### 5. **CELL PERFORMANCE**

# 5.1 TEST REQUIREMENTS

The following conditions are for new batteries (within one month after delivery under the test method of 5.2).

Temperature:  $+15 \sim +25$ °C; Relative humidity:  $45\% \sim 85\%$ . Environmental

IC-1400A Page 2 of 5



Room 2703, Well Tech Centre 9 Pat Tat Street, San Po Kong, Hong Kong

Tel : (852) 2885 1100 Fax : (852) 2947 0588

## 5.2 TEST METHOD AND PERFORMANCES

# **5.2.1** APPEARANCE

The cell should be free from stretches, dents, dirt and rusts.

# 5.2.2 CAPACITY

Charge with 0.1C for 16 hours then discharge with 0.2C to the end-voltage 1.0 V/unit, the capacity shall be more than 1400 mAh.

# 5.2.3 OPEN-CIRCUIT VOLTAGE

The open-circuit voltage within one hour after full charge shall be more than 1.25V/unit.

## 5.2.4 INTERNAL IMPEDANCE

Within one hour after full charge, the internal impedance shall be less than  $23m\Omega$  /cell.

# 5.2.5 HIGH RATE DISCHARGE

The capacity shall be more than 1260 mAh with the constant discharge current of 700mA to the end voltage of 1.0V/unit after the battery is fully charged.

## 5.2.6 SELF-DISCHARGE

The capacity shall be more than 980 mAh after the storage of 28 days for the fully charged battery.

# 5.2.7 OVER-CHARGE I

The battery shall not cause salting, leakage or reformation when charged at 140 mA for 48 hours and the capacity shall be more than 1400 mAh.

## **5.2.8 OVER DISCHARGE**

The battery shall not cause reformation when it is discharged for 24 hours with the external resistance at  $0.5 \Omega$ .

# 5.2.9 LIFE-SPAN(CUSTOM)

The capacity shall be more than 980 mAh after 500 cycles with the test conditions as follow:

## TEST CONDITION

Cycle-th	Charge	Rest	Discharge	
1	Charge at 0.1C <sub>5</sub> for 16 hours	None	Discharge at 0.25C <sub>5</sub> for 2.33 h	
2 ~ 48	Charge at 0.25C <sub>5</sub> for 3.17 hours	None	Discharge at 0.25C <sub>5</sub> for 2.33 h	
49	Charge at 0.25C <sub>5</sub> for 3.17 hours	None	Discharge to 1.0V/unit	
50	Charge at 0.1C <sub>5</sub> for 16 hours	1 ~ 4 hrs	Discharge at 0.2C <sub>5</sub> to 1.0V/unit	

IC-1400A Page 3 of 5



Room 2703, Well Tech Centre 9 Pat Tat Street, San Po Kong, Hong Kong

Tel : (852) 2885 1100 Fax : (852) 2947 0588

# 5.2.10 LIFE-SPAN(EXPRESS)

The battery shall supply 980 mAh at the 400th cycle under the conditions as follows.

Charge	$0.5C_5$ for 144 minutes (- $\triangle$ V= $\underline{10}$ mV)	
Discharge	1C <sub>5</sub> to 1.0V/unit	

# **5.2.11 STORAGE**

Within 14 days, the battery shall not cause leakage at  $30\text{-}60^{\circ}\text{C}$  with the relative humidity at 75%-85%.

## 5.2.12 VIBRATION

The battery shall not cause damage to its performances when tested with the amplitude at 4 mm (0.158 inch) and the frequency at 1000Hz.

## **5.2.13 DROP TEST**

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

## 5.2.14 SHORT CIRCUIT

The fully charged battery shall not explode when shorted directly by wires.

# 5.2.14 INCORRECT POLARITY CHARGE

The battery shall not explode when charged for 5 hours with the polarity being reverse.

# 5.2.16 OVER CHARGE II

The battery shall not explode when charged at 1C for 3 hours.

# 6. CAUTIONS

- A. The end-voltage is recommended at  $1.0 \pm 0.1 \text{V/unit}$ .
- B. The battery may go fail when shorted, over-charged or charged with incorrect polarity.
- C. Avoiding soldering directly to the battery.
- D. Do not dispose of in fire and keep away from damage.

# 7. REFERENCE

Please refer to Intec's Customer Service if there is any question on using batteries.

IC-1400A Page 4 of 5

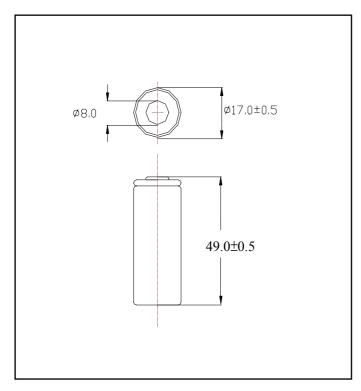


# **Specifications**

Nominal voltage			1.2V		
			C/5	C	
Capacity	Nominal	ominal		1260	
(mAh)	Typical	ypical (		1300	
Diameter			$0.67 \pm 0.02$ in		
			$17.0 \pm 0.5 \text{ mm}$		
Height			$1.93 \pm 0.02$ in		
			$49.0 \pm 0.5 \text{ mm}$		
Weight			32g		
Internal impedance at 1000Hz.			<b>3</b> mΩ		
			(After charge)		
Standard		·d	140mA×16hrs		
	Quick	Quick		700mA×	
Charge				2.4hrs	
	Trickle	Max.	70	)mA	
	TITCKIC	Min.	45mA		
Ambient temperature	Charge	Standard	-10℃	~30℃	
	Charge	Quick	10℃	~45°C	
	e Dischar	Discharge		-20℃~60℃	
	Storage	Storage		-20℃~35℃	

# Note:

- 1. Nominal capacity, rated at C/5,20℃.
- 2. Other capacities are for reference.
- 3. Weight and internal impedance are for reference.

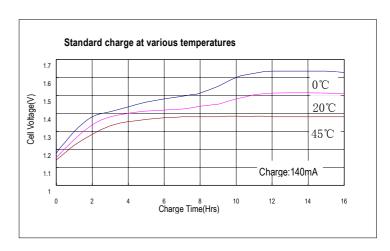


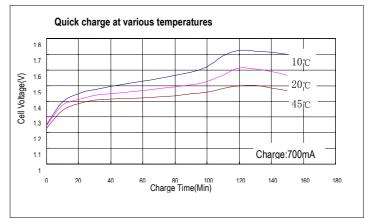
# Intec Industries Co., Ltd.

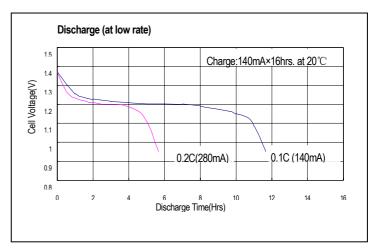
Room 2703, Well Tech Centre 9 Pat Tat Street, San Po Kong, Hong Kong

Tel : (852) 2885 1100 Fax : (852) 2947 0588

# **Typical characteristics**







IC-1400A Page 5 of 5