

Product Specification

for Ni-MH Battery

Model Number: Ni-MH C 1.2V 4000mAh

| Prepared By | Verified By | Approved By |
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Contents

1. SCOPE

This specification governs the performance of the following Everwin Tech Co., Limited Nickel- Hydride cylindrical Cell and its stack-up batteries.

Model: Ni-MH C 1.2V4000mAh

The data involving nominal voltage and the approximate weight of stake-up batteries shall be equal to the value of the unit cell multiplied by the number of unit cells in the battery.

Nominal voltage of unit cell = 1.2V

2. RATINGS

| Description | Unit | Specification | Conditions |
|---------------------------|------|-------------------------|---|
| Nominal Voltag | V | 1.2V | |
| Nominal Capacity | mAh | 4000 | Standard Charge/discharge |
| Minimum Capacity | mAh | 4000 | Standard Charge/discharge |
| Standard Charge | mA | 400(0.1C) | Ta=0~45°C |
| | hour | 14-16 | |
| Fast Charge | mA | 0.5C | '- Δ V=0~5mV/cell , Timer Cutoff=120%nominal capacity , Temp.Cutoff=55°C, dT/dt=0.8°C/min, T1=20±5°C |
| | hour | 2.4 approx | |
| Trickle Charge | mA | 0.03C ~ 0.05C | Ta=0~70 °C |
| Standard discharge | mA | 800(0.2C) | T1= 20±5°C Humidity: Max85% |
| Discharge Cut-off Voltage | V | 1.0V | |
| Storage Temperature | °C | -20~25(Within 1 year) | State: 30% charge Humidity: Max85% |
| | | -20~35(Within 6 months) | |
| | | -20~45(Within 1 month) | |
| | | -20~55(Within 1 week) | |
| Typical Weight | g | 86 | unit cell |

3. PERFORMANCE

Unless otherwise stated, tests should be done within one month of delivery under the following conditions:

Ambient Temperature: Ta=20±5°C

Relative Humidity: 65±20%

Standard Charge/ Discharge Condition:

Charge: 400mA(0.1C)×16hrs

Discharge: 800mA(0.2C)to 1.0V/ cell

| Test | Unit | Specification | Conditions | Remarks |
|----------------------------|-------|--|--|----------------------------|
| Capacity | mAh | ≥4000 | Standard Charge/Discharge | Up to 3 cycles are allowed |
| Open Circuit Voltage (OCV) | V | ≥1.25 | Within 1hr after standard charge | |
| Internal Impedance (Ri) | mΩ | ≤30 | Upon fully charge(1kHz) (1kHz) | |
| High Rate Discharge (1C) | min | ≥45 | Standard Charge, 1hr rest before discharge | |
| Charge Retention | mAh | ≥2400(60%) | Standard Charge, Storage 28days Standard Discharge | T1=20±5°C |
| Leakage | | No leakage nor deformation | Fully charged at 380mA 48 hrs | |
| IEC Cycle Life | Cycle | ≥500 | IEC61951-2(2003)7.4.1.1 | see Note 3 |
| Vibration Resistance | | Change of voltage should be less than 0.02V/cell, Change of impedance should be less than 5 milli-ohm/cell | Charge the battery at 0.1C for 14hrs, then leave for 24hrs, check battery before/after vibration, amplitude 1.5mm, vibration 3000 CPM, any direction for 60mins. | |
| Impact Resistance | | Change of voltage should be less than 0.02V/cell, change of impedance should be less than 5 milli-ohm/cell | Charge the battery at 0.1C for 14hrs, then leave for 24hrs, check battery before/after dropped, height 50 cm wooden board(thickness 30mm)direction not specified, 3 times. | |

4. CONFIGURATION, DIMENSIONS AND MARKINGS

Please refer to the attached drawing.

5. EXTERNAL APPEARANCE

The cell/ battery shall be free from cracks, scars, breakage, rust, Discoloration, leakage nor deformation.

6、CAUTION

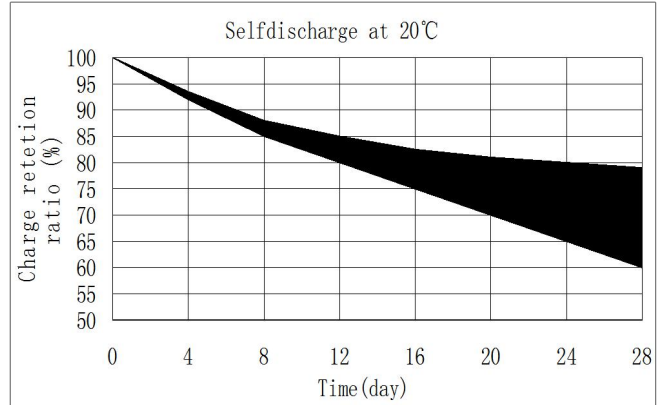
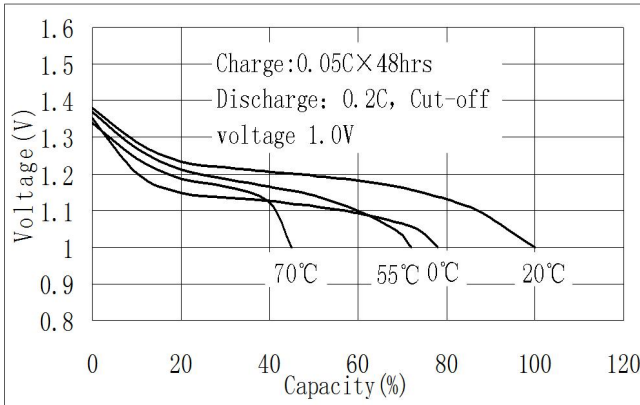
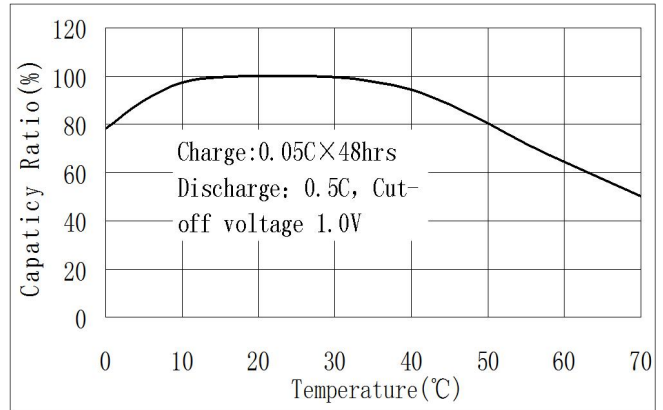
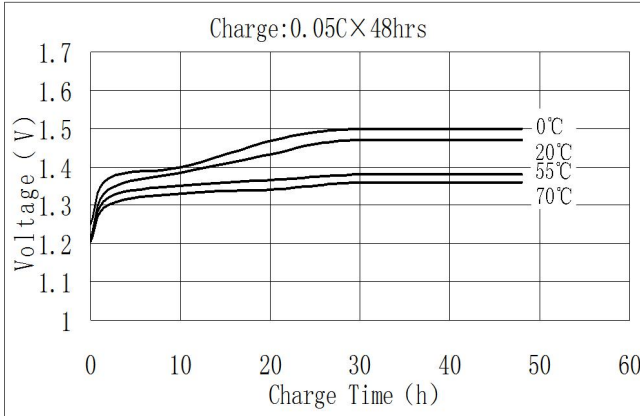
- [1] Reverse charging is not acceptable.
- [2] Charge before use. The cells/batteries are delivered in an uncharged state
- [3] Do not charge/discharge with more than our specified current.
- [4] Do not short circuit the cell/battery Permanent damage to the cells/batteries may result.
- [5] Do not incinerate or mutilate the cells/batteries.
- [6] Do not solder directly to the cells/batteries.
- [7] The expected life may be reduced if the cells/batteries are subjected to adverse conditions as: extreme temperature, deep cycling, excessive overcharge/ over-discharge.
- [8] Store the cells/batteries in a cool dry place. Always discharge batteries before packing.

Notes:

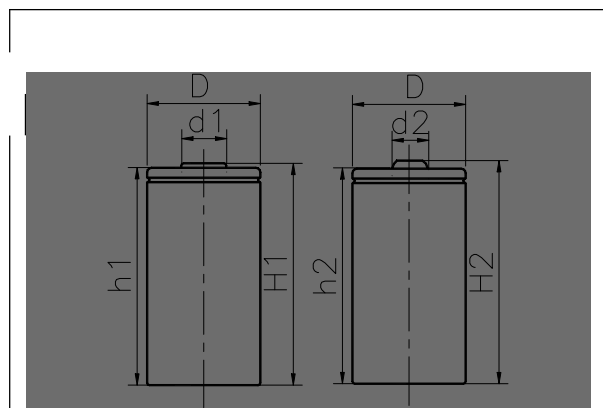
- [1] T1: Ambient Temperature.
- [2] Approximate charge time from discharged state, for reference only.
- [3] IEC61951-2(2003)7.4.1.1 Cycle Life:

| Cycle No. | Charge | Rest | Discharge |
|---|-----------------|------|--------------------|
| 1 | 0.1C × 16h | None | 0.25C × 2h20min |
| 2-48 | 0.25C × 3h10min | None | 0.25C × 2h20min |
| 49 | 0.25C × 3h10min | None | 0.25C to 1.0V/cell |
| 50 | 0.1C × 16h | 1-4h | 0.2C to 1.0V/cell |
| Cycle 1 to 50 shall be repeated until the discharge duration on any 50th cycle becomes less than 3 h. | | | |

7. Specification



8. Draw



| Dimensions(without Tube) (mm) | | | |
|-------------------------------|------------|----|------------|
| D | 25.40±0.20 | | |
| | | d2 | 6.00±0.08 |
| H1 | 49.00±0.50 | H2 | 49.50±0.50 |
| | | h2 | 47.50±0.50 |

OTICE: Any question you must apprise us in a week, or the standards will be accepted.