**SCREENING REPORT** Page: 1

**Test Number:** 14872B00  **Report Date:** 2021-04-02

**Battery Name:** Duracell MN1500

**Chemistry:** Zn/MnO₂ (Alk)

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**Request Number:** 210316-3

**Task Number:** 12787

**Lot Number:** 12965

**Form Factor:** Cylinder

**Purpose:** Evaluation Screen & Tab

**Project Engineer:** VHE/WCH

Criteria: PRE TAB Min. POST TABMin.

**OCV (Volt):** 1.61.6

**CCV (Volt):** N/A1.3

**Drain Time (Sec):** N/A5.0

**Resistor (Ω): :** N/A3.3

**Pre/Post OCV Tolerance for tabbing only (Volt):** < 0.002V

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**Battery Size (mm):** AA

**Discharge Temperature (°C):** 24

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**Number of Batteries Tested :** 46

**Number of Batteries Failed(\*):** 0

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**Date of Manufacture:** 11/10/2020

**Date of Receipt:** 03/17/2021

**Date Started:**

**Date Completed:**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Prepared By: \_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_ Reviewed By: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

Reviewed By: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_

**Test Number:** 14872B00

Note(s):  
  
1. Report Date:  
  
2. Test Responsibility:  
   
 a. Data file preparation:  
 b. Technical review:  
 c. Final review:

**SCREENING REPORT**

**Test Number:** 14872B00  **Date:**2021-04-02

**Sample Name:** Duracell MN1500

**Chemistry:** Zn/MnO₂ (Alk)

**Pre-Tab** **Voltage Statistic Table**

All samples OCV Passing Samples OCV

**Maximum:** **1.641 Maximum:** **1.641**

**Minimum:** **1.631 Minimun:** **1.631**

**Median:** **1.640 Median:** **1.640**

**Mean (M):** **1.640 Mean(M):** **1.640**

**Stander Deviation (SD):** **0.00196 Stander Deviation(SD):** **0.0019**

**Total Samples:** **46**

**Total Passing Criterion:** **45 OCV > or =** *1.600* **V**

**Total Failing Criterion:** **1 Absolute OCV difference for before and After**

**95% confidence Interval** 1.639 / 1.640 **Tab is <** 0.002 **V**

**Outlier Min/Max** 1.638/ 1.642

**Total Outlier:** 6

**Note:** Outlier in Raw Data Report will be marked with symbol (\*)

Fail sample in Raw Data Report will be marked with symbol (!)

**CUMULATIVE TABLE**

|  |  |  |  |
| --- | --- | --- | --- |
| **All Sample OCV** | | **\*Passing Sample OCV** | |
| Voltage Range | Samples | Voltage Range | Sample |
| 1.641-1.639 | 35 | 1.641-1.639 | 35 |
| 1.639-1.637 | 5 | 1.639-1.637 | 5 |
| 1.637-1.635 | 4 | 1.637-1.635 | 3 |
| 1.635-1.633 | 1 | 1.635-1.633 | 1 |
| 1.633-1.631 | 0 | 1.633-1.631 | 0 |
| 1.631-1.629 | 1 | 1.631-1.629 | 1 |
| 1.629-1.627 | 0 | 1.629-1.627 | 0 |

**SCREENING REPORT**

**Test Number:** 14872B00  **Date:**2021-04-02

**Sample Name:** Duracell MN1500

**Chemistry:** Zn/MnO₂ (Alk)

**Post-Tab** **Voltage Statistic Table**

All samples OCV CCV Passing Samples OCV CCV

**Maximum:** **1.641 1.550**  **Maximum: 1.641 1.550**

**Minimum:** **1.630 1.500**   **Minimun: 1.630 1.500**

**Median:** **1.640 1.526**   **Median: 1.640 1.526**

**Mean (M):** **1.639 1.524**   **Mean(M): 1.639 1.524**

**Stander Deviation (SD):** **0.00227 0.00825**  **Stander Deviation(SD): 0.00201 0.00825**

**Total Samples:** **46**  **46**   **OCV > or = *1.600* V**

**Total Passing Criterion:** **45** **46**   **CCV > or = *1.300* V @ 3.3 Ohms for 5.0 Seconds.**

**Total Failing Criterion:** **1**  **0**   **Absolute OCV difference for before and After**

**95% confidence Interval** 1.639 / 1.640 1.522/1.526  **Tab is <** 0.002 **V**

**Outlier Min/Max** 1.638/ 1.641 1.504/1.544

**Total Outliers:** 6 2

**Note:** Outlier in Raw Data Report will be marked with symbol (\*)

Fail sample in Raw Data Report will be marked with symbol (!)

**CUMULATIVE TABLE**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **All Sample OCV** | | **All Sample CCV** | | **\*Passing Sample OCV** | | **\*Passing Sample CCV** | |
| Voltage Range | Samples | Voltage Range | Samples | Voltage Range | Samples | Voltage Range | Samples |
| 1.641-1.639 | 30 | 1.550-1.543 | 1 | 1.641-1.639 | 30 | 1.550-1.543 | 1 |
| 1.639-1.637 | 11 | 1.543-1.536 | 0 | 1.639-1.637 | 11 | 1.543-1.536 | 0 |
| 1.637-1.635 | 2 | 1.536-1.529 | 8 | 1.637-1.635 | 2 | 1.536-1.529 | 8 |
| 1.635-1.633 | 1 | 1.529-1.522 | 20 | 1.635-1.633 | 1 | 1.529-1.522 | 20 |
| 1.633-1.631 | 1 | 1.522-1.515 | 9 | 1.633-1.631 | 0 | 1.522-1.515 | 9 |
| 1.631-1.629 | 1 | 1.515-1.508 | 7 | 1.631-1.629 | 1 | 1.515-1.508 | 7 |
|  |  | 1.508-1.501 | 0 | 1.629-1.627 | 0 | 1.508-1.501 | 0 |
|  |  | 1.501-1.494 | 1 |  |  | 1.501-1.494 | 1 |
|  |  |  |  |  |  | 1.494-1.487 | 0 |

**SCREENING REPORT**

**Test Number:** 14872B00 **Raw Data** **Chemistry:** Zn/MnO₂ (Alk)

**Sample Name:** Duracell MN1500 **Load:**  /3.3Ω

**Sort Order:** Bar Code Number **Load Time:**  /5.0Sec(S)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Bar Code Number | Manufacturer  Number | Manufacture Date | Pre-Tab OCV |  | Post-Tab OCV | Post-Tab CCV | Inspection |
| 468783 |  | 11/10/2020 | 1.636 \* |  | 1.632 ^ | 1.550 \* | OL T OH |
| 468784 |  | 11/10/2020 | 1.640 |  | 1.640 | 1.500 \* | OL |
| 468785 |  | 11/10/2020 | 1.641 |  | 1.640 | 1.529 | OK |
| 468786 |  | 11/10/2020 | 1.641 |  | 1.640 | 1.518 | OK |
| 468787 |  | 11/10/2020 | 1.635 \* |  | 1.634 \* | 1.522 | OL OL |
| 468788 |  | 11/10/2020 | 1.641 |  | 1.640 | 1.529 | OK |
| 468789 |  | 11/10/2020 | 1.640 |  | 1.640 | 1.513 | OK |
| 468790 |  | 11/10/2020 | 1.641 |  | 1.640 | 1.529 | OK |
| 468791 |  | 11/10/2020 | 1.641 |  | 1.640 | 1.528 | OK |
| 468792 |  | 11/10/2020 | 1.631 \* |  | 1.630 \* | 1.519 | OL OL |
| 468793 |  | 11/10/2020 | 1.641 |  | 1.640 | 1.533 | OK |
| 468794 |  | 11/10/2020 | 1.639 |  | 1.638 | 1.524 | OK |
| 468795 |  | 11/10/2020 | 1.641 |  | 1.640 | 1.524 | OK |
| 468796 |  | 11/10/2020 | 1.641 |  | 1.640 | 1.510 | OK |
| 468797 |  | 11/10/2020 | 1.640 |  | 1.639 | 1.528 | OK |
| 468798 |  | 11/10/2020 | 1.641 |  | 1.639 | 1.532 | OK |
| 468799 |  | 11/10/2020 | 1.641 |  | 1.640 | 1.526 | OK |
| 468800 |  | 11/10/2020 | 1.641 |  | 1.639 | 1.520 | OK |
| 468801 |  | 11/10/2020 | 1.641 |  | 1.640 | 1.516 | OK |
| 468802 |  | 11/10/2020 | 1.637 \* |  | 1.636 \* | 1.528 | OL OL |
| 468803 |  | 11/10/2020 | 1.641 |  | 1.641 | 1.519 | OK |
| 468804 |  | 11/10/2020 | 1.638 |  | 1.638 | 1.531 | OK |
| 468805 |  | 11/10/2020 | 1.640 |  | 1.639 | 1.525 | OK |
| 468806 |  | 11/10/2020 | 1.641 |  | 1.641 | 1.526 | OK |
| 468807 |  | 11/10/2020 | 1.639 |  | 1.640 | 1.528 | OK |
| 468808 |  | 11/10/2020 | 1.640 |  | 1.641 | 1.529 | OK |
| 468809 |  | 11/10/2020 | 1.640 |  | 1.641 | 1.517 | OK |
| 468810 |  | 11/10/2020 | 1.639 |  | 1.639 | 1.515 | OK |
| 468811 |  | 11/10/2020 | 1.641 |  | 1.641 | 1.512 | OK |
| 468812 |  | 11/10/2020 | 1.638 |  | 1.639 | 1.529 | OK |
| 468813 |  | 11/10/2020 | 1.637 \* |  | 1.637 \* | 1.528 | OL OL |
| 468814 |  | 11/10/2020 | 1.637 \* |  | 1.638 | 1.514 | OL |
| 468815 |  | 11/10/2020 | 1.640 |  | 1.640 | 1.528 | OK |
| 468816 |  | 11/10/2020 | 1.640 |  | 1.641 | 1.530 | OK |
| 468817 |  | 11/10/2020 | 1.640 |  | 1.640 | 1.521 | OK |
| 468818 |  | 11/10/2020 | 1.640 |  | 1.641 | 1.531 | OK |
| 468819 |  | 11/10/2020 | 1.640 |  | 1.641 | 1.531 | OK |
| 468820 |  | 11/10/2020 | 1.640 |  | 1.640 | 1.533 | OK |
| 468821 |  | 11/10/2020 | 1.640 |  | 1.640 | 1.526 | OK |
| 468822 |  | 11/10/2020 | 1.640 |  | 1.639 | 1.524 | OK |
| 468823 |  | 11/10/2020 | 1.640 |  | 1.640 | 1.523 | OK |
| 468824 |  | 11/10/2020 | 1.640 |  | 1.639 | 1.533 | OK |
| 468825 |  | 11/10/2020 | 1.640 |  | 1.640 | 1.514 | OK |
| 468826 |  | 11/10/2020 | 1.641 |  | 1.641 | 1.527 | OK |
| 468827 |  | 11/10/2020 | 1.641 |  | 1.641 | 1.519 | OK |
| 468828 |  | 11/10/2020 | 1.641 |  | 1.641 | 1.515 | OK |

Key: ^ for Tab Tolerance Fail(T), ! for Criteria Fall(F), \* for outlier(OH for High)(OL for Low)