



URS PRODUCTS & TESTING PVT. LTD.

F-3, Sector - 6, Noida - 201301, India
T: +91 (0120) 4516264 - 65
E: info@urs-labs.com W: www.urs-labs.com
CIN: U21014UP1987PTC008956

SUMMARY OF TEST REPORT

TEST REPORT NO: URS/TEE/RID/19-20/784

DATED: 24/09/2019

(Number of pages in test report: Page no. 01 to 52)

TEST FORMAT AS PER IS 16046(Part 2):2018/IEC 62133-2:2017

1.Name of Manufacturer: Anhui Pinyou Battery Co.,Ltd.

2.Product: Rechargeable Lithium-ion Cell

Lead Model: 18650-3200, Series Model: 18650-1200, 18650-1500, 18650-1800, 18650-2000,

3. Model(s): 18650-2100, 18650-2200, 18650-2500, 18650-2600, 18650-2900, 18500-1200, 18500-1500,
18500-1600, 14500-600, 14500-800, 18350-700, 18350-900, 10440-260, 10440-320, 10440-350

4.Model differences provided (if applicable): Yes

5.Model differences verified as per MEITY Guidelines for series formulation: Yes

6.Test Results: See below

| S No. | TEST REQUIREMENT | CLAUSE | VERDICT |
|-------|--|---------|---------|
| 1 | Parameter measurement tolerances | 4.0 | Pass |
| 2 | General safety considerations | 5.0 | Pass |
| 3 | Venting | 5.3 | Pass |
| 4 | Temperature/Current management | 5.4 | N/A |
| 5 | Terminal contacts | 5.5 | Pass |
| 6 | Assembly of cells into batteries | 5.6 | N/A |
| 7 | Quality plan | 5.7 | Pass |
| 8 | Battery safety components | 5.8 | N/A |
| 9 | Type test and sample size | 6.0 | Pass |
| 10 | Charging procedure for test purposes | 7.1 | Pass |
| 11 | Intended use | 7.2 | Pass |
| 12 | Reasonably foreseeable misuse | 7.3 | Pass |
| 13 | Information for Safety | 8.0 | Pass |
| 14 | Marking | 9.0 | Pass |
| 15 | Packaging and transport | 10.0 | Pass |
| 16 | Charging and discharging range of secondary lithium ion cells for safe use | ANNEX A | Pass |

Virendra Kumar



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Group-Cells And Batteries



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| | | | |
|----|---|---------|------|
| 17 | Recommendations to equipment manufacturers and battery assemblers | ANNEX B | Pass |
| 18 | Recommendation to the end-users | ANNEX C | Pass |
| 19 | Measurement of internal ac resistance for coin cells | ANNEX D | N/A |
| 20 | Packing and transport | ANNEX E | Pass |
| 21 | Component standards references | ANNEX F | Pass |

General Information:

The conformity certificates of critical components are verified to ensure complete testing of apparatus under test and details regarding harmonized IEC standards (where IEC standards are not available) are also provided in the list of critical component.

CONCLUSION:

- 1.) Sample meets all relevant requirements of IS 16046(Part 2):2018/IEC 62133-2:2017 YES
- 2.) Sample fails to meet the following test requirements:N/A
- 3) I hereby, undertake that the verdict stated in the test report for all the tests matches with the test results.

Vijay Kumar

(Signature of Authorized person with Stamp)



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URS/TEE/RID/19-20/784

Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 1 of 52

| | | | |
|-------------------------------------|--|------------------|-----------------|
| Manufacturer | Anhui Pinyou Battery Co.,Ltd. | | |
| | Building 10, Innovation Park, Economic Development Area New District, Huaibei City, Anhui Province, Anhui, 235066 | | |
| Test item: | Rechargeable Lithium-ion Cell | | |
| | Lead Model:18650-3200 | | |
| Identification | Series Model:18650-1200, 18650-1500, 18650-1800, 18650-2000, 18650-2100, 18650-2200, 18650-2500, 18650-2600, 18650-2900, 18500-1200, 18500-1500, 18500-1600, 14500-600, 14500-800, 18350-700, 18350-900, 10440-260, 10440-320, 10440-350 | | Serial No.: Nil |
| Receipt No.: | URS/TEE/SCLS/19-20/781 | Date of receipt: | 03/09/2019 |
| Testing laboratory and its address: | URS PRODUCTS AND TESTING PRIVATE LIMITED F-3, Sector-6 Noida-201301 | | |
| Test specification: | IS 16046 (Part 2):2018 / IEC 62133-2:2017 | | |
| Test Result: | The test item passed the test specification(s) | | |
| Other Aspects: | <p>- Equipment under test(EUT) is Rechargeable Li-ion Cell Lead Model " 18650-3200" has been tested as per IS 16046 (Part 2):2018 / IEC 62133-2:2017 complies to all the applicable parameters.</p> <p>- P=Pass, F=Fail, N/A=Not Applicable</p> <p>Special Note: This Test Report is having Test Start Date: 03/09/2019 and Test End Date: 24/09/2019. However, for the same Test Report, BIS CRS Smart Registration Portal is showing Test Start Date: 24/09/2019 and Test End Date: 24/09/2019.</p> <p>This contradiction in dates has been occurred, because at the time of starting the test, lab has clicked the " Start Test" on BIS CRS Smart Registration Portal which had reset automatically. However in actual, the tests were keep on running in lab but on CRS Smart Registration portal this is showing "Start Test".</p> <p>Thus to sort out this problem, we issue test report by clicking Start Test and End Test on the same day in order to comply the requirement of report issuance on smart registration portal.</p> <p>This is why the actual Test Start Date and Test End Date which is mentioned in this Test report and Test Start Date and Test End Date showing on BIS smart registration portable is different.</p> <p>This test report relates to the test sample submitted and list of documents attached.</p> | | |



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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 2 of 52

| Tested by: | Approved by / Authorized Signatory: | Issued by: |
|---|---|---|
|  |  |  |
| Vivek Kumar, Analyst | Ankit Kumar, Manager Technical | Md Fakhre Alam, Manager Technical |
| 24/09/2019 | 24/09/2019 | 24/09/2019 |



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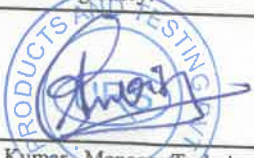
IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 3 of 52

TEST REPORT

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes — Safety Requirements for Portable Sealed
Secondary Cells and for Batteries
Made from Them for Use in Portable Applications
Part 2 Lithium Systems

| | | |
|---|---|---|
| Report Reference No. : | URS/TEE/RID/19-20/784 | |
| Date of issue : | 24/09/2019 | |
| Total number of pages | 52 | |
| Testing Laboratory | URS PRODUCTS AND TESTING PRIVATE LIMITED | |
| Address | F-3, Sector-6 Noida-201301 | |
| Manufacturer's name : | Anhui Pinyou Battery Co.,Ltd. | |
| Address | Building 10, Innovation Park, Economic Development Area New District, Huaibei City, Anhui Province, Anhui, 235066 | |
| Test specification: | | |
| Standard | IS 16046 (Part 2):2018 / IEC 62133-2:2017 | |
| Test procedure | BIS Compliance Report | |
| Non-standard test method | N/A | |
| Test Report Form No: | BIS_BAT/SCAB_IS16046(PART2)_V1.0 | |
| Test Report Form(s) Originator | Bureau of Indian Standards | |
| Master TRF | 10.01.2019 | |
| Test item description: | Rechargeable Lithium-ion Cell | |
| Trade Mark |  | |
| Model/Type reference | Lead Model:18650-3200 Series Model:18650-1200, 18650-1500, 18650-1800, 18650-2000, 18650-2100, 18650-2200, 18650-2500, 18650-2600, 18650-2900, 18500-1200, 18500-1500, 18500-1600, 14500-600, 14500-800, 18350-700, 18350-900, 10440-260, 10440-320, 10440-350 | |
| Ratings | 3200mAh 3.7V 11.84Wh (Copy of marking label page no. 06) | |
| Other Documents submitted | Please refer to Table – List of Attachments at Page No. 05 | |
| Tested by: | Approved by / Authorized Signatory: | Issued by: |
|  |  |  |
| Vivek Kumar , Analyst | Ankit Kumar , Manager Technical | Md Fakhre Alam , Manager Technical |
| 24/09/2019 | 24/09/2019 | 24/09/2019 |

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URS/TEE/RID/19-20/784

Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 4 of 52

| Description | Measurement/ testing | Total No. of tests | Total no. of applicable tests/ Req. | No. of tests/ Req. passed | Page No. |
|--|--|--------------------|-------------------------------------|---------------------------|----------|
| General Requirements | Parameter measurement tolerances | 01 | 01 | 01 | 19 |
| General safety considerations | Insulation and wiring | 09 | 03 | 03 | 20 |
| General safety considerations | Venting | 03 | 02 | 02 | 21 |
| General safety considerations | Temperature/voltage/Current management | 04 | 00 | 00 | 22 |
| General safety considerations | Terminal contacts | 04 | 04 | 04 | 23 |
| General safety considerations | Assembly of cells into batteries | 23 | 00 | 00 | 24 |
| General safety considerations | Quality plan | 02 | 02 | 02 | 27 |
| General safety considerations | Battery safety components | 02 | 00 | 00 | 28 |
| Type test and sample size | Type test conditions | 06 | 03 | 03 | 29 |
| Specific requirements and tests | Charging procedure for test purposes | 09 | 08 | 08 | 30 |
| Specific requirements and tests | Intended use | 07 | 04 | 04 | 31 |
| Specific requirements and tests | Reasonably foreseeable misuse | 48 | 17 | 17 | 32 |
| Information for safety | Information for safety | 12 | 03 | 03 | 35 |
| Marking Requirements | Marking | 16 | 06 | 06 | 37 |
| Packaging and Transport | Packaging | 03 | 02 | 02 | 39 |
| Charging and discharging range of secondary lithium ion cells for safe use | Charging and discharging range of secondary lithium ion cells for safe use (Annex A) | 51 | 24 | 24 | 40 |
| Measurement of the internal AC resistance for coin cells | Measurement of the internal AC resistance for coin cells (Annex D) | 06 | 00 | 00 | 44 |

Certificate: It is certified that the above tests were performed and found to be passing in the requirement tested.

(Approving Authority)

Vijay C

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 5 of 52

Table – List of Attachments

| Attachment No. | Attachment Description | No. of pages in Attachment |
|----------------|------------------------|----------------------------|
| Attachment-1 | Photo document | 52-52 |

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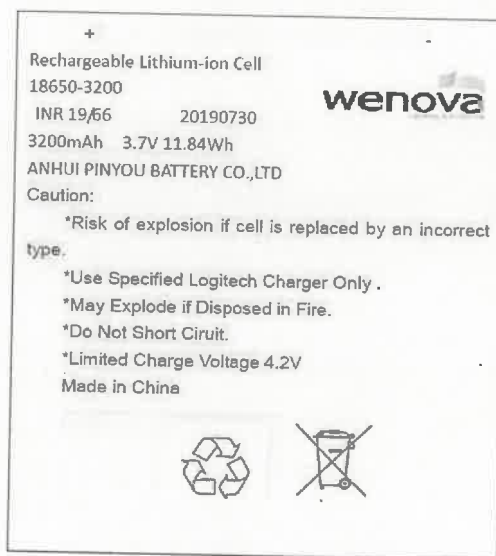
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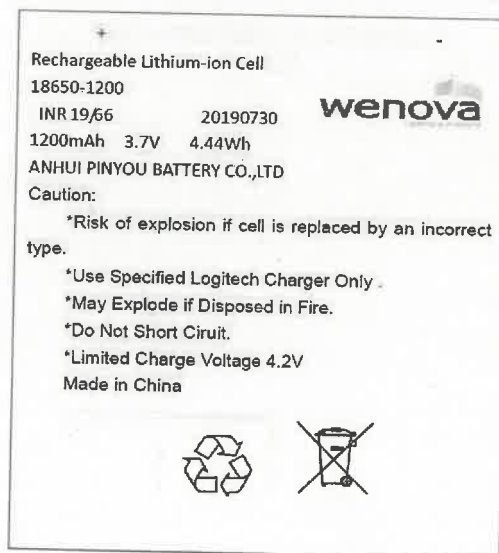
Page 6 of 52

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Marking label of Lead Model



Marking Label of Series Model



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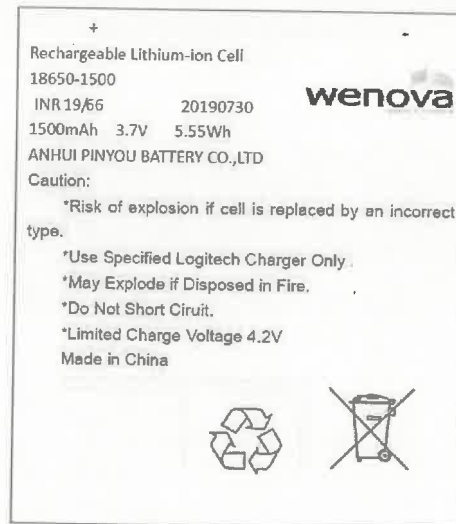
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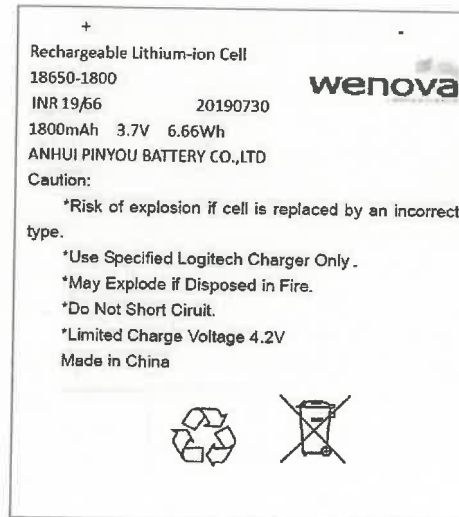
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IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 7 of 52

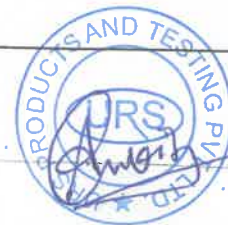


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Handwritten signature: Virendra





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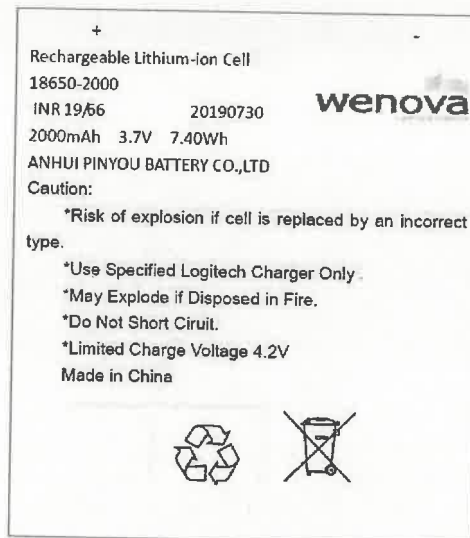
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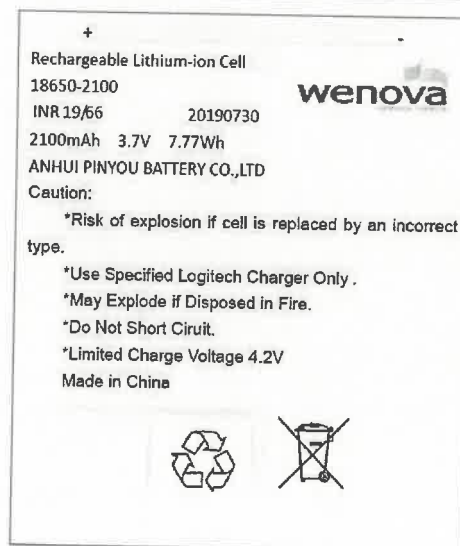
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IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 8 of 52



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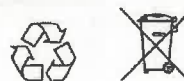
Page 9 of 52

Rechargeable Lithium-ion Cell
18650-2200
INR 19/66 20190730 **wenova**
2200mAh 3.7V 8.14Wh
ANHUI PINGYOU BATTERY CO.,LTD
Caution:
*Risk of explosion if cell is replaced by an incorrect type.
*Use Specified Logitech Charger Only .
*May Explode if Disposed in Fire.
*Do Not Short Circuit.
*Limited Charge Voltage 4.2V
Made in China



Marking Label of Series Model

Rechargeable Lithium-ion Cell
18650-2500
INR 19/66 20190730 **wenova**
2500mAh 3.7V 9.25Wh
ANHUI PINGYOU BATTERY CO.,LTD
Caution:
*Risk of explosion if cell is replaced by an incorrect type.
*Use Specified Logitech Charger Only .
*May Explode if Disposed in Fire.
*Do Not Short Circuit.
*Limited Charge Voltage 4.2V
Made in China



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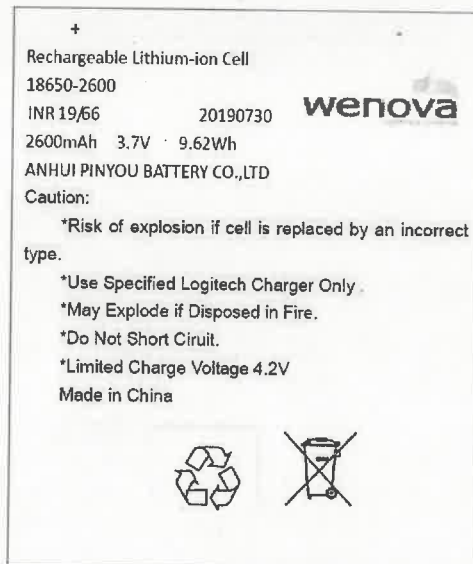
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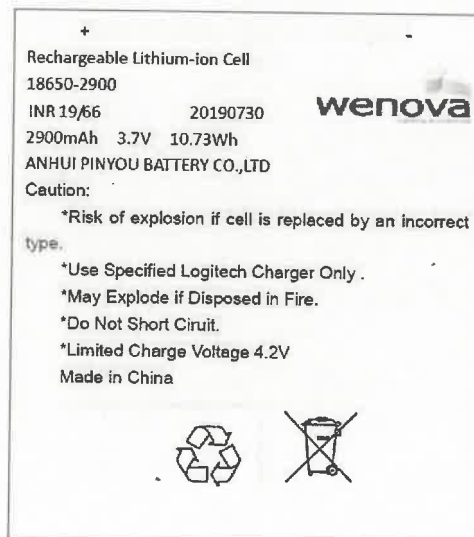
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Page 10 of 52



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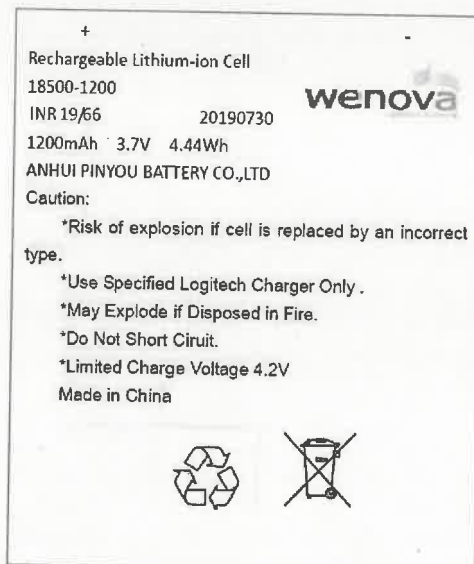
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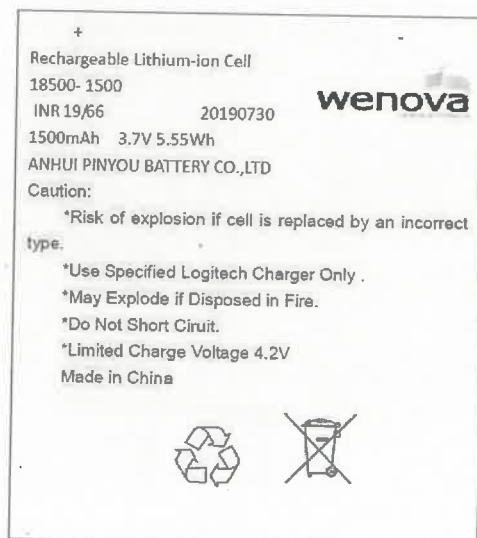
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Page 11 of 52



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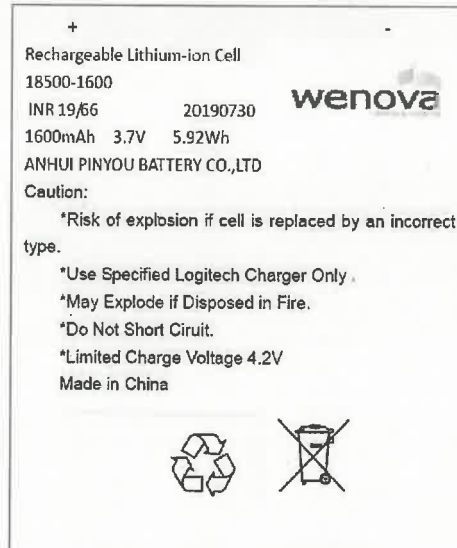
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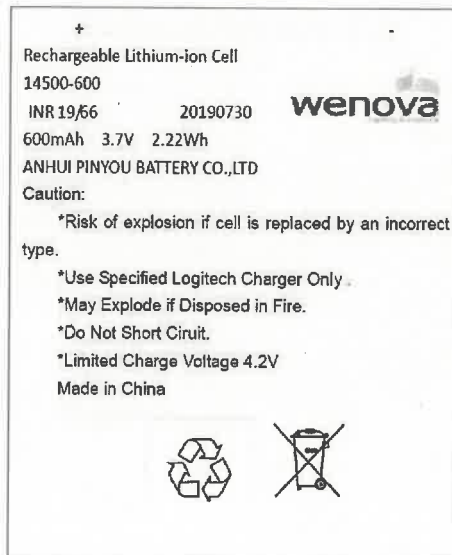
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Page 12 of 52

Dated : 24/09/2019



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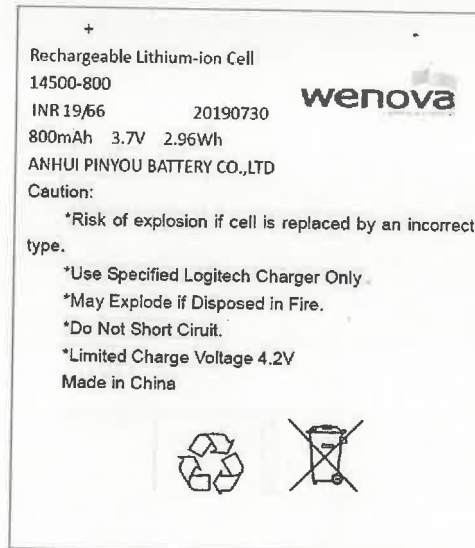
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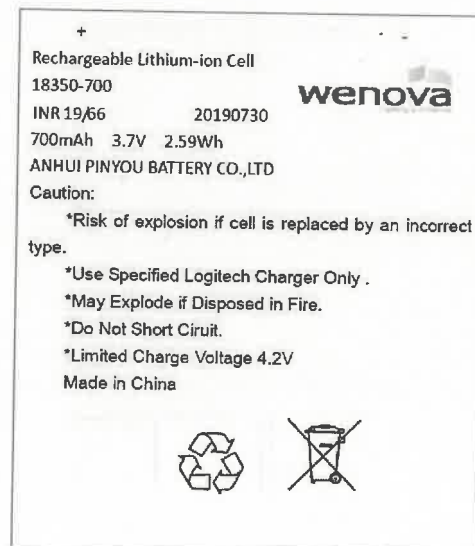
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Page 13 of 52



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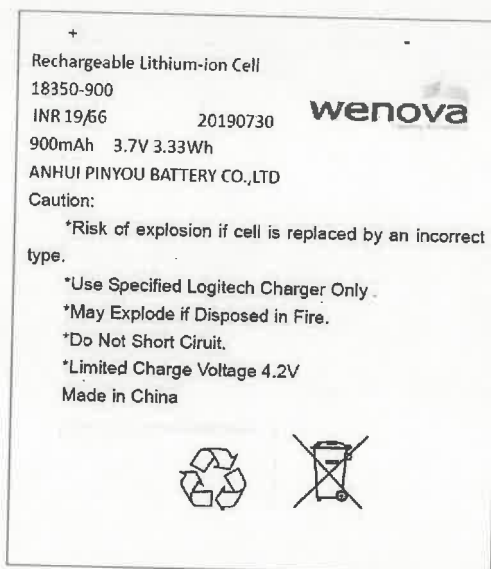
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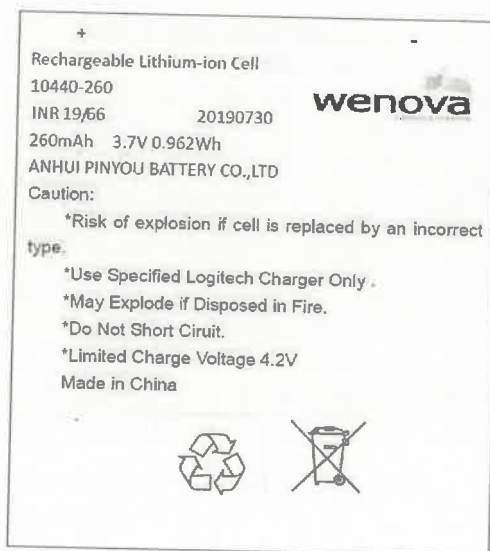
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IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 14 of 52



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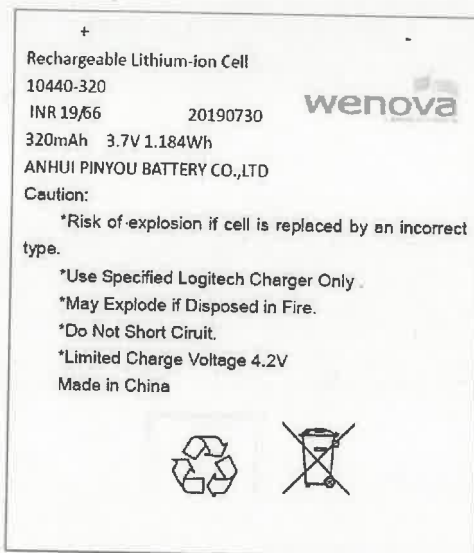
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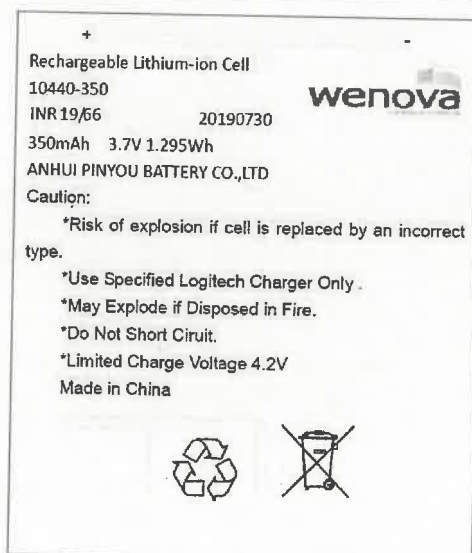
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Page 15 of 52



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IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 16 of 52

| | |
|---|--|
| Test item particulars | Rechargeable Li-ion Cell |
| Classification of installation and use | Class III & used in the portable application |
| Supply Connection | Not directly connected to mains |
| Recommend charging method declared by the manufacturer | CC/CV |
| Discharge current (0,2 It A) | 640mA |
| Specified final voltage | 4.2V |
| Upper limit charging voltage per cell | 4.2V |
| Maximum charging current | 3200mA |
| Charging temperature upper limit | 45 °C |
| Charging temperature lower limit | 0 °C |
| Polymer cell electrolyte type <input type="checkbox"/> gel polymer <input type="checkbox"/> solid polymer <input checked="" type="checkbox"/> NA | |
| Possible test case verdicts: | |
| - test case does not apply to the test object: | N/A |
| - test object does meet the requirement : | P (Pass) |
| - test object does not meet the requirement : | F (Fail) |
| Testing: | |
| Date of receipt of test item: | 03/09/2019 |
| Date(s) of performance of tests: | 03/09/2019 to 24/09/2019 |
| General remarks: | |
| The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. | |
| Laboratory conditions | |
| Ambient Temperature: | (20 ± 5) °C |
| Ambient Humidity: | (60 ± 15) %RH |

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 17 of 52

General product information:

1) Application details / Description of the product:

The Equipment under test(EUT) is Rechargeable Li-ion Cell Lead Model "18650-3200" has been tested as per IS 16046 (Part 2):2018 / IEC 62133-2:2017 complies to all the applicable parameters.

Equipment under test(EUT) details mention below:

Test Item: Rechargeable Lithium-ion Cell



Brand Name:

Model:Lead Model:18650-3200

Series Model:18650-1200, 18650-1500, 18650-1800, 18650-2000, 18650-2100, 18650-2200, 18650-2500, 18650-2600, 18650-2900, 18500-1200, 18500-1500, 18500-1600, 14500-600, 14500-800, 18350-700, 18350-900, 10440-260, 10440-320, 10440-350

Mass of Equipment: 45.82gm (Approx.)

Rating: 3200mAh 3.7V 11.84Wh

(Copy of marking label page no. 6)

| Model | Charging Voltage (Vdc) | Standard Charging Current (mA) | Maximum Charging Current (mA) | Discharging Current (mA) | End Discharge Voltage (Vdc) | Cut-off Current(mA) |
|------------|------------------------|--------------------------------|-------------------------------|--------------------------|-----------------------------|---------------------|
| 18650-3200 | 4.2 | 1600mA | 3200mA | 640mA | 2.75V | 160 |

Max. specified ambient temperature (°C) Charging temp. Range: 0°C ~ + 45°C, Discharge temp. Range: -20°C ~ + 60°C

2) Differences between the models:

Similarities:

- a) Same Nominal Voltage (3.7V)
- b) Same construction Design(Cylindrical type)
- c) Same type of Electrode/Electrolytes used

Differences:

- a) Model Name
- b) Rated Capacity

| Model Name | Voltage (V) | Capacity(mAh) |
|------------|-------------|---------------|
| 18650-3200 | 3.7 | 3200 |
| 18650-1200 | 3.7 | 1200 |
| 18650-1500 | 3.7 | 1500 |
| 18650-1800 | 3.7 | 1800 |
| 18650-2000 | 3.7 | 2000 |
| 18650-2100 | 3.7 | 2100 |
| 18650-2200 | 3.7 | 2200 |
| 18650-2500 | 3.7 | 2500 |
| 18650-2600 | 3.7 | 2600 |
| 18650-2900 | 3.7 | 2900 |
| 18500-1200 | 3.7 | 1200 |

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 18 of 52

| | | |
|------------|-----|------|
| 18500-1500 | 3.7 | 1500 |
| 18500-1600 | 3.7 | 1600 |
| 14500-600 | 3.7 | 600 |
| 14500-800 | 3.7 | 800 |
| 18350-700 | 3.7 | 700 |
| 18350-900 | 3.7 | 900 |
| 10440-260 | 3.7 | 260 |
| 10440-320 | 3.7 | 320 |
| 10440-350 | 3.7 | 350 |

Model No. tested with-in the family series

18650-3200(Worst Case)

3) Options:

The equipment was tested without any optional accessory installed. Hence, this report does not cover parameters that are influenced by the installation of optional accessory that might affect safety in the meaning of this standard.

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 19 of 52

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|----------------------------------|--|---------|
| 4 | Parameter measurement tolerances | All controlled and measured values were within the tolerances. | P |

Total number of Requirements to be observed / inspected =01

Total No. of applicable Requirement =01

No. of Requirements for which the sample passed =01

Total number of tests to be conducted =00

Total No. of applicable Tests =00

No. of tests for which the sample passed =N/A

Certificate: It is certified that the above tests were performed and found to be Passing in the requirement tested.

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 20 of 52

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|--|--|---------|
| 5 | GENERAL SAFETY CONSIDERATIONS | See below | P |
| 5.1 | General | The Cell is safe and Continue to function in all respect of its intended use, the cell is safe and does not present significant Hazards under the condition of reasonably foreseeable misuse | P |
| | Cells and batteries so designed and constructed that they are safe under conditions of both intended use and reasonably foreseeable misuse | Complied | P |
| 5.2 | Insulation and wiring | See below | N/A |
| | The insulation resistance between the positive terminal and externally exposed metal surfaces of the battery (excluding electrical contact surfaces) is not less than 5 MΩ | Considered for battery Pack only | N/A |
| | Insulation resistance (MΩ) : | As above | N/A |
| | Internal wiring and insulation are sufficient to withstand maximum anticipated current, voltage and temperature requirements | As above | N/A |
| | Orientation of wiring maintains adequate clearance and creepage distances between conductors | As above | N/A |
| | Mechanical integrity of internal connections accommodates reasonably foreseeable misuse | As above | N/A |

Total number of Requirements to be observed / inspected =03
Total No. of applicable Requirement =03
No. of Requirements for which the sample passed =03
Total number of tests to be conducted =06
Total No. of applicable Tests =00
No. of tests for which the sample passed =N/A

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 21 of 52

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|---|--|---------|
| 5.3 | Venting | See below | P |
| | Battery cases and cells incorporate a pressure relief mechanism or are constructed so that they relieve excessive internal pressure at a value and rate that will preclude rupture, explosion and self-ignition | The edge of packing which next to terminal was considered as the pressure relief mechanism, which can release pressure during the abnormal condition | P |
| | Encapsulation used to support cells within an outer casing does not cause the battery to overheat during normal operation nor inhibit pressure relief | The cell is a built-in product, which shall be enclosed in a rigid case, and will be evaluated in a final system | N/A |

Total number of Requirements to be observed / inspected =01

Total No. of applicable Requirement =01

No. of Requirements for which the sample passed =01

Total number of tests to be conducted =02

Total No. of applicable Tests =01

No. of tests for which the sample passed =01

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 22 of 52

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|--|----------------------------------|---------|
| 5.4 | Temperature, voltage and current management | Considered for battery pack only | N/A |
| | Batteries are designed such that abnormal temperature rise conditions are prevented | As above | N/A |
| | Batteries are designed to be within temperature, voltage and current limits specified by the cell manufacturer | As above | N/A |
| | Batteries are provided with specifications and charging instructions for equipment manufacturers so that specified chargers are designed to maintain charging within the temperature, voltage and current limits specified | As above | N/A |

Total number of Requirements to be observed / inspected =00

Total No. of applicable Requirement =00

No. of Requirements for which the sample passed =N/A

Total number of tests to be conducted =04

Total No. of applicable Tests =00

No. of tests for which the sample passed =N/A

Certificate: It is certified that the above tests were performed and found to be not applicable in the requirement tested.

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 23 of 52

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|--|--|---------|
| 5.5 | Terminal contacts | See below | P |
| | The size and shape of the terminal contacts ensure that they can carry the maximum anticipated current | The size and shape of the terminal contacts are suitable for the maximum anticipated current | P |
| | External terminal contact surfaces are formed from conductive materials with good mechanical strength and corrosion resistance | In compliance | P |
| | Terminal contacts are arranged to minimize the risk of short-circuit | In compliance | P |

Total number of Requirements to be observed / inspected =04

Total No. of applicable Requirement =04

No. of Requirements for which the sample passed =04

Total number of tests to be conducted =00

Total No. of applicable Tests =00

No. of tests for which the sample passed =N/A

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 24 of 52

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|--|----------------------------------|---------|
| 5.6 | Assembly of cells into batteries | Considered for battery pack only | N/A |
| 5.6.1 | General | As above | N/A |
| | Each battery have an independent control and protection for current, voltage, temperature and any other parameter required for safety and to maintain the cells within their operating region | As above | N/A |
| | This protection may be provided external to the battery such as within the charger or the end devices | As above | N/A |
| | If protection is external to the battery, the manufacturer of the battery provide this safety relevant information to the external device manufacturer for implementation | As above | N/A |
| | If there is more than one battery housed in a single battery case, each battery have protective circuitry that can maintain the cells within their operating regions | As above | N/A |
| | Manufacturers of cells specify current, voltage and temperature limits so that the battery manufacturer/designer may ensure proper design and assembly | As above | N/A |
| | Batteries that are designed for the selective discharge of a portion of their series connected cells incorporate circuitry to prevent operation of cells outside the limits specified by the cell manufacturer | As above | N/A |
| | Protective circuit components added as appropriate and consideration given to the end-device application | As above | N/A |
| | The manufacturer of the battery provide a safety analysis of the battery safety circuitry with a test report including a fault analysis of the protection circuit under both charging and discharging conditions confirming the compliance | As above | N/A |
| 5.6.2 | Design recommendation | As above | N/A |

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 25 of 52

| | | |
|--|----------|-----|
| For the battery consisting of a single cell or a single cellblock, it is recommended that the charging voltage of the cell does not exceed the upper limit of the charging voltage specified in Table 2 | As above | N/A |
| For the battery consisting of series-connected plural single cells or series-connected plural cellblocks, it is recommended that the voltages of any one of the single cells or single cellblocks does not exceed the upper limit of the charging voltage, specified in Table 2, by monitoring the voltage of every single cell or the single cellblocks | As above | N/A |
| For the battery consisting of series-connected plural single cells or series-connected plural cellblocks, it is recommended that charging is stopped when the upper limit of the charging voltage is exceeded for any one of the single cells or single cellblocks by measuring the voltage of every single cell or the single cellblocks | As above | N/A |
| For batteries consisting of series-connected cells or cell blocks, nominal charge voltage not be counted as an overcharge protection | As above | N/A |
| For batteries consisting of series-connected cells or cell blocks, cells have closely matched capacities, be of the same design, be of the same chemistry and be from the same manufacturer | As above | N/A |
| It is recommended that the cells and cell blocks not discharged beyond the cell manufacturer's specified final voltage | As above | N/A |
| For batteries consisting of series-connected cells or cell blocks, cell balancing circuitry incorporated into the battery management system | As above | N/A |

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 26 of 52

| | | | |
|-------|--|----------|-----|
| 5.6.3 | Mechanical protection for cells and components of batteries | As above | N/A |
| | Mechanical protection for cells, cell connections and control circuits within the battery provided to prevent damage as a result of intended use and reasonably foreseeable misuse | As above | N/A |
| | The mechanical protection can be provided by the battery case or it can be provided by the end product enclosure for those batteries intended for building into an end product | As above | N/A |
| | The battery case and compartments housing cells designed to accommodate cell dimensional tolerances during charging and discharging as recommended by the cell manufacturer | As above | N/A |
| | For batteries intended for building into a portable end product, testing with the battery installed within the end product considered when conducting mechanical tests | As above | N/A |

Total number of Requirements to be observed / inspected =23

Total No. of applicable Requirement =00

No. of Requirements for which the sample passed =N/A

Total number of tests to be conducted =00

Total No. of applicable Tests =00

No. of tests for which the sample passed =N/A

Certificate: It is certified that the above tests were performed and found to be not applicable in the requirement tested.

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IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 27 of 52

Dated : 24/09/2019

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|---|--|---------|
| 5.7 | Quality plan | See below | P |
| | The manufacturer prepares and implements a quality plan that defines procedures for the inspection of materials, components, cells and batteries and which covers the whole process of producing each type of cell or battery | The manufactures provide an ISO 9001 Certificate for reference | P |

Total number of Requirements to be observed / inspected =02

Total No. of applicable Requirement =02

No. of Requirements for which the sample passed =02

Total number of tests to be conducted =00

Total No. of applicable Tests =00

No. of tests for which the sample passed =N/A

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 28 of 52

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|---------------------------|----------------------------------|---------|
| 5.8 | Battery safety components | Considered for battery pack only | N/A |
| | According annex F | As above | N/A |

Total number of Requirements to be observed / inspected =02

Total No. of applicable Requirement =00

No. of Requirements for which the sample passed =N/A

Total number of tests to be conducted =00

Total No. of applicable Tests =00

No. of tests for which the sample passed =N/A

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 29 of 52

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|--|--|---------|
| 6 | TYPE TEST AND SAMPLE SIZE | See below | P |
| | Tests are made with the number of cells or batteries specified in Table 1 using cells or batteries that are not more than six months old | Provided Samples are complied within 6 month from the manufacturing date | P |
| | Coin cells with resistance $\leq 3 \Omega$ (measured according annex D) are tested according table 1 | This is consider for only Coin Cell | N/A |
| | Unless otherwise specified, tests are carried out in an ambient temperature of $20^\circ\text{C} \pm 5^\circ\text{C}$ | Considered and evaluated for the Cells | P |
| | The safety analysis of 5.6.1 identify those components of the protection circuit that are critical for short-circuit, overcharge and overdischarge protection | Considered for battery pack only | N/A |
| | When conducting the short-circuit test, consideration given to the simulation of any single fault condition that is likely to occur in the protecting circuit that would affect the short-circuit test | Considered for battery pack only | N/A |

Total number of Requirements to be observed / inspected =06

Total No. of applicable Requirement =03

No. of Requirements for which the sample passed =03

Total number of tests to be conducted =00

Total No. of applicable Tests =00

No. of tests for which the sample passed =N/A

Certificate: It is certified that the above tests were performed and found to be Passing in the requirement tested.

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 30 of 52

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|--|--|---------|
| 7 | SPECIFIC REQUIREMENTS AND TESTS | See below | P |
| 7.1 | Charging procedure for test purposes | In compliance | P |
| 7.1.1 | First procedure | See below | P |
| | This charging procedure applies to subclauses other than those specified in 7.1.2 | Except Procedure specified in Clause No. 7.1.2 First procedure used | P |
| | Unless otherwise stated in this document, the charging procedure for test purposes is carried out in an ambient temperature of $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$, using the method declared by the manufacturer | The cell were charged at an ambient temperature of $(20^{\circ}\text{C} \pm 5^{\circ}\text{C})$ according to manufacture specification | P |
| | Prior to charging, the battery have been discharged at $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$ at a constant current of 0,2 It A down to a specified final voltage | This is not a battery Pack | N/A |
| 7.1.2 | Second procedure | See below | P |
| | This charging procedure applies only to 7.3.1, 7.3.4, 7.3.5, and 7.3.9 | Second Procedure used for test of Clause No. 7.3.1,7.3.4, and 7.3.5 | P |
| | After stabilization for 1 h and 4 h, respectively, at ambient temperature of highest test temperature and lowest test temperature, as specified in Table 2, cells are charged by using the upper limit charging voltage and maximum charging current, until the charging current is reduced to 0,05 It A, using a constant voltage charging method | Complied | P |

Total number of Requirements to be observed / inspected =01

Total No. of applicable Requirement =01

No. of Requirements for which the sample passed =01

Total number of tests to be conducted =08

Total No. of applicable Tests =07

No. of tests for which the sample passed =07

Certificate: It is certified that the above tests were performed and found to be Passing in the requirement tested.

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 31 of 52

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|--|--|---------|
| 7.2 | Intended use | See below | P |
| 7.2.1 | Continuous charging at constant voltage (cells) | Complied | P |
| | Fully charged cells are subjected for 7 days to a charge using the charging method for current and standard voltage specified by the cell manufacturer | Five fully charged cells are subjected for 7 days to a charge as specified by manufacturer | P |
| | Results: No fire. No explosion. No leakage | No Fire, No Explosion, No Leakage during and after the test | P |
| 7.2.2 | Case stress at high ambient temperature (battery) | Considered for battery pack only | N/A |
| | Oven temperature (°C) | As above | N/A |
| | Results: No physical distortion of the battery case resulting in exposure of internal protective components and cells | As above | N/A |

Total number of Requirements to be observed / inspected =05

Total No. of applicable Requirement =03

No. of Requirements for which the sample passed =03

Total number of tests to be conducted =02

Total No. of applicable Tests =01

No. of tests for which the sample passed =01

Certificate: It is certified that the above tests were performed and found to be Passing in the requirement tested.

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 32 of 52

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|--|--|---------|
| 7.3 | Reasonably foreseeable misuse | See below | P |
| 7.3.1 | External short-circuit (cell) | Complied | P |
| | The cells were tested until one of the following occurred: | See below | P |
| | - 24 hours elapsed; or | No such condition observed | N/A |
| | - The case temperature declined by 20 % of the maximum temperature rise | Cell case temperature declined by 20% of the maximum temperature rise. | P |
| | Results: No fire. No explosion | No fire, no explosion | P |
| 7.3.2 | External short-circuit (battery) | See below | N/A |
| | The batteries were tested until one of the following occurred: | Considered for battery pack only | N/A |
| | - 24 hours elapsed; or | As above | N/A |
| | - The case temperature declined by 20 % of the maximum temperature rise | As above | N/A |
| | In case of rapid decline in short circuit current, the battery pack remained on test for an additional one hour after the current reached a low end steady state condition | As above | N/A |
| | A single fault in the discharge protection circuit conducted on one to four (depending upon the protection circuit) of the five samples before conducting the short-circuit test | As above | N/A |
| | A single fault applies to protective component parts such as MOSFET, fuse, thermostat or positive temperature coefficient (PTC) thermistor | As above | N/A |
| | Results: No fire. No explosion | As above | N/A |
| 7.3.3 | Free fall | Fully charged Cells tested for this condition, The testing was conducted at 20°C ± 5°C | P |
| | Results: No fire. No explosion | No fire, No explosion | P |
| 7.3.4 | Thermal abuse (cells) | Fully charged cells were placed in a gravity or circulating air-convection oven. And tested for this condition | P |
| | Oven temperature (°C) | 130°C±2°C | P |
| | Results: No fire. No explosion | No fire, no explosion after the test | P |
| 7.3.5 | Crush (cells) | Complied | P |

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 33 of 52

| | | | |
|-------|--|---|-----|
| | The crushing force was released upon: | See below | P |
| | - The maximum force of 13 kN \pm 0,78 kN has been applied; or | Maximum force of 13 kN \pm 0.78 kN has been applied | P |
| | - An abrupt voltage drop of one-third of the original voltage has been obtained | No such condition observed | N/A |
| | Results: No fire. No explosion | No fire, no explosion occurred after the test | P |
| 7.3.6 | Over-charging of battery | See below | N/A |
| | The supply voltage which is: | Considered for battery pack only | N/A |
| | - 1,4 times the upper limit charging voltage presented in Table A.1 (but not to exceed 6,0 V) for single cell/cell block batteries or | As above | N/A |
| | - 1,2 times the upper limit charging voltage resented in Table A.1 per cell for series connected multi-cell batteries, and | As above | N/A |
| | - Sufficient to maintain a current of 2,0 It A throughout the duration of the test or until the supply voltage is reached | As above | N/A |
| | Test was continued until the temperature of the outer casing: | As above | N/A |
| | - Reached steady state conditions (less than 10 °C change in 30-minute period); or | As above | N/A |
| | - Returned to ambient | As above | N/A |
| | Results: No fire. No explosion | As above | N/A |
| 7.3.7 | Forced discharge (cells) | Five fully Discharged cells tested for this condition (See table 7.3.7) | P |
| | If the discharge voltage reaches the negative value of upper limit charging voltage within the testing duration, the voltage is maintained at the negative value of the upper limit charging voltage by reducing the current for the remainder of the testing duration | No such condition observed | N/A |
| | If the discharge voltage does not reach the negative value of upper limit charging voltage within the testing duration, the test is | In compliance | P |

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IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 34 of 52

Dated : 24/09/2019

| | | | |
|---------|---|---|-----|
| | terminated at the end of the testing duration | | |
| | Results: No fire. No explosion | No fire , no explosion observed after the test | P |
| 7.3.8 | Mechanical tests (batteries) | See below | N/A |
| 7.3.8.1 | Vibration | Considered for battery pack only | N/A |
| | Results: No fire, no explosion, no rupture, no leakage or venting. | As above | N/A |
| 7.3.8.2 | Mechanical shock | Considered for battery pack only | N/A |
| | Results: No leakage, no venting, no rupture, no explosion and no fire | As above | N/A |
| 7.3.9 | Design evaluation – Forced internal short-circuit (cells) | This is country specific test applicable only in France, Japan, Korea , Switzerland | N/A |
| | The cells complied with national requirement for | As above | N/A |
| | The pressing was stopped upon: | As above | N/A |
| | - A voltage drop of 50 mV has been detected; or | As above | N/A |
| | - The pressing force of 800 N (cylindrical cells) or 400 N (prismatic cells) has been reached | As above | N/A |
| | Results: No fire | As above | N/A |

Total number of Requirements to be observed / inspected =12

Total No. of applicable Requirement =07

No. of Requirements for which the sample passed =07

Total number of tests to be conducted =26

Total No. of applicable Tests =10

No. of tests for which the sample passed =10

Certificate: It is certified that the above tests were performed and found to be Passing in the requirement tested.

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 35 of 52

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|--|---|---------|
| 8 | INFORMATION FOR SAFETY | Complied | P |
| 8.1 | General | See below | P |
| | Manufacturers of secondary cells ensure that information is provided about current, voltage and temperature limits of their products | Current, voltage and temperature limits information provided in product specification | P |
| | Manufacturers of batteries ensure that equipment manufacturers and, in the case of direct sales, end-users are provided with information to minimize and mitigate hazards | Consider for battery pack only | N/A |
| | Systems analyses performed by device manufacturers to ensure that a particular battery design prevents hazards from occurring during use of a product | Consider for battery pack only | N/A |
| | As appropriate, any information relating to hazard avoidance resulting from a system analysis provided to the end user | Consider for battery pack only | N/A |
| | Do not allow children to replace batteries without adult supervision | Consider for battery pack only | N/A |
| 8.2 | Small cell and battery safety information | See below | N/A |
| | The following warning language is to be provided with the information packaged with the small cells and batteries or equipment using them: | This is not a small cell | N/A |
| | - Keep small cells and batteries which are considered swallowable out of the reach of children- Keep small cells and batteries which are considered swallowable out of the reach of children | As above | N/A |
| | - Swallowing may lead to burns, perforation of soft tissue, and death. Severe burns can occur within 2 h of ingestion | As above | N/A |
| | - In case of ingestion of a cell or battery, seek medical assistance promptly | As above | N/A |

Total number of Requirements to be observed / inspected =12
Total No. of applicable Requirement =03

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 36 of 52

No. of Requirements for which the sample passed =03
Total number of tests to be conducted =00
Total No. of applicable Tests =00
No. of tests for which the sample passed =N/A
Certificate: It is certified that the above tests were performed and found to be Passing in the requirement tested.

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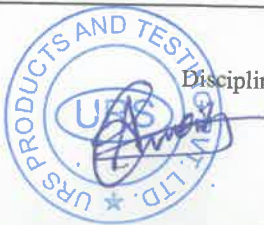
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IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 37 of 52

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|---|--|---------|
| 9 | MARKING | See below | P |
| 9.1 | Cell marking | Complies | P |
| | Cells marked as specified in IEC 61960, except coin cells | Marked (See copy of marking plate of page no. 5) | P |
| | Coin cells whose external surface area is too small to accommodate the markings on the cells show the designation and polarity | This is not a Coin Cell | N/A |
| | By agreement between the cell manufacturer and the battery and/or end product manufacturer, component cells used in the manufacture of a battery need not be marked | Appropriate marking label provided on the sample | N/A |
| 9.2 | Battery marking | See below | N/A |
| | Batteries marked as specified in IEC 61960, except for coin batteries | Considered for battery pack only | N/A |
| | Coin batteries whose external surface area is too small to accommodate the markings on the batteries show the designation and polarity. Batteries also marked with an appropriate caution statement | As above | N/A |
| | Terminals have clear polarity marking on the external surface of the battery | As above | N/A |
| | Batteries with keyed external connectors designed for connection to specific end products need not be marked with polarity markings if the design of the external connector prevents reverse polarity connections | As above | N/A |
| 9.3 | Caution for ingestion of small cells and batteries | As above | N/A |
| | Coin cells and batteries identified as small batteries according to 8.2 include a caution statement regarding the hazards of ingestion in accordance with 8.2 | As above | N/A |
| | When small cells and batteries are intended for direct sale in consumer-replaceable applications, caution for | As above | N/A |

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 38 of 52

| | | | |
|-----|--|---|---|
| | ingestion given on the immediate package | | |
| 9.4 | Other information | See below | P |
| | Storage and disposal instructions | Provide on manufacture specification | P |
| | Recommended charging instructions | Charging specification provided on manufacturer specification | P |

Total number of Requirements to be observed / inspected =16

Total No. of applicable Requirement =06

No. of Requirements for which the sample passed =06

Total number of tests to be conducted =00

Total No. of applicable Tests =00

No. of tests for which the sample passed =N/A

Certificate: It is certified that the above tests were performed and found to be Passing in the requirement tested.

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IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 39 of 52

Dated : 24/09/2019

| Clause | Requirement + Test | Result - Remark | Verdict |
|--------|---|-------------------------|---------|
| 10 | PACKAGING AND TRANSPORT | See below | P |
| | Packaging for coin cells not small enough to fit within the limits of the ingestion gauge of Figure 3 | This is not a Coin Cell | N/A |
| | The materials and packaging design are chosen so as to prevent the development of unintentional electrical conduction, corrosion of the terminals and ingress of environmental contaminants | Satisfactory | P |

Total number of Requirements to be observed / inspected =03

Total No. of applicable Requirement =02

No. of Requirements for which the sample passed =02

Total number of tests to be conducted =00

Total No. of applicable Tests =00

No. of tests for which the sample passed =N/A

Certificate: It is certified that the above tests were performed and found to be Passing in the requirement tested.

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 40 of 52

| Clause | Requirement + Test | Result - Remark | Verdict |
|---------|---|--|---------|
| ANNEX A | CHARGING AND DISCHARGING RANGE OF SECONDARY LITHIUM ION CELLS FOR SAFE USE | In compliance | P |
| A.1 | General | See below | P |
| A.2 | Safety of lithium ion secondary battery | Not for Cell | N/A |
| A.3 | Consideration on charging voltage | See below | P |
| A.3.1 | General | Charging voltage applied as per manufacturer specification | P |
| A.3.2 | Upper limit charging voltage | See below | P |
| A.3.2.1 | General | Upper limit charging voltage is 4.20V | P |
| A.3.2.2 | Explanation of safety viewpoint | Charging voltage applied during the testing is with-in the upper limit | P |
| A.3.2.3 | Safety requirements, when different upper limit charging voltage is applied | Considered | P |
| A.4 | Consideration of temperature and charging current | In compliance | P |
| A.4.1 | General | See below | P |
| A.4.2 | Recommended temperature range | Charge temperature declared by the manufacture 0°C~45°C | P |
| A.4.2.1 | General | See below | P |
| A.4.2.2 | Safety consideration when a different recommended temperature range is applied | Test carried out at temperature range 0°C~45°C | P |
| A.4.3 | High temperature range | See below | N/A |
| A.4.3.1 | General | High temperature range is 45 °C | N/A |
| A.4.3.2 | Explanation of safety viewpoint | As above | N/A |
| A.4.3.3 | Safety considerations when specifying charging conditions in the high temperature range | As above | N/A |
| A.4.3.4 | Safety considerations when specifying a new upper limit in the high temperature range | As above | N/A |
| A.4.4 | Low temperature range | See below | P |
| A.4.4.1 | General | Lower temperature range is 0°C | P |
| A.4.4.2 | Explanation of safety viewpoint | As above | P |
| A.4.4.3 | Safety considerations, when specifying charging conditions in the low temperature range | As above | P |
| A.4.4.4 | Safety considerations when | As above | P |

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 41 of 52

| | | | |
|---------|---|--|-----|
| | specifying a new lower limit in the low temperature range | | |
| A.4.5 | Scope of the application of charging current | In compliance | P |
| A.4.6 | Consideration of discharge | See below | P |
| A.4.6.1 | General | In compliance | P |
| A.4.6.2 | Final discharge voltage and explanation of safety viewpoint | Considered as per manufacturer recommendation | P |
| A.4.6.3 | Discharge current and temperature range | As above | P |
| A.4.6.4 | Scope of application of the discharging current | In compliance | P |
| A.5 | Sample preparation | This is country specific test applicable only in France, Japan, Korea, Switzerland | N/A |
| A.5.1 | General | As above | N/A |
| A.5.2 | Insertion procedure for nickel particle to generate internal short | As above | N/A |
| A.5.3 | Disassembly of charged cell | As above | N/A |
| A.5.4 | Shape of nickel particle | As above | N/A |
| A.5.5 | Insertion of nickel particle in cylindrical cell | As above | N/A |
| A.5.5.1 | Insertion of nickel particle in winding core | As above | N/A |
| A.5.5.2 | Marking the position of the nickel particle on both ends of the winding core of the separator | As above | N/A |
| A.5.6 | Insertion of nickel particle in prismatic cell | As above | N/A |
| A.6 | Experimental procedure of the forced internal short-circuit test | As above | N/A |
| A.6.1 | Material and tools for preparation of nickel particle | As above | N/A |
| A.6.2 | Example of a nickel particle preparation procedure | As above | N/A |
| A.6.3 | Positioning (or placement) of a nickel particle | As above | N/A |
| A.6.4 | Damaged separator precaution | As above | N/A |
| A.6.5 | Caution for rewinding separator and electrode | As above | N/A |
| A.6.6 | Insulation film for preventing short-circuit | As above | N/A |
| A.6.7 | Caution when disassembling a cell | As above | N/A |

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 42 of 52

| | | | |
|--------|---|----------|-----|
| A.6.8 | Protective equipment for safety | As above | N/A |
| A.6.9 | Caution in the case of fire during disassembling | As above | N/A |
| A.6.10 | Caution for the disassembling process and pressing the electrode core | As above | N/A |
| A.6.11 | Recommended specifications for the pressing device | As above | N/A |

Total number of Requirements to be observed / inspected =51

Total No. of applicable Requirement =24

No. of Requirements for which the sample passed =24

Total number of tests to be conducted =00

Total No. of applicable Tests =00

No. of tests for which the sample passed =N/A

Certificate: It is certified that the above tests were performed and found to be Passing in the requirement tested.

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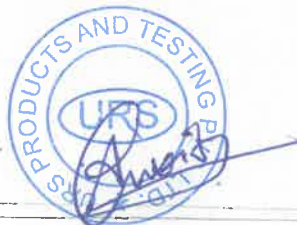
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IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 43 of 52

| Clause | Requirement + Test | Verdict |
|---------|---|---------|
| ANNEX B | RECOMMENDATIONS TO EQUIPMENT MANUFACTURERS AND BATTERY ASSEMBLERS | P |
| Clause | Requirement + Test | Verdict |
| ANNEX C | RECOMMENDATIONS TO THE END-USERS | P |

Whereas





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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 44 of 52

| Clause | Requirement + Test | Result - Remark | Verdict |
|---------|---|--------------------------|---------|
| ANNEX D | MEASUREMENT OF THE INTERNAL AC RESISTANCE FOR COIN CELLS | See below | N/A |
| D.1 | General | This is not a coin cells | N/A |
| D.2 | Method | As above | N/A |
| | A sample size of three coin cells is required for this measurement | As above | N/A |
| | Coin cells with an internal resistance of less than or equal to 3Ω are subjected to the testing according to Clause 6 and Table 1 | As above | N/A |
| | Coin cells with an internal resistance greater than 3Ω require no further testing | As above | N/A |

Total number of Requirements to be observed / inspected =00

Total No. of applicable Requirement =00

No. of Requirements for which the sample passed =N/A

Total number of tests to be conducted =06

Total No. of applicable Tests =00

No. of tests for which the sample passed =N/A

Certificate: It is certified that the above tests were performed and found to be not applicable in the requirement tested.

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 45 of 52

| Clause | Requirement + Test | Verdict |
|---------|--------------------------------|---------|
| ANNEX E | PACKAGING AND TRANSPORT | P |
| Clause | Requirement + Test | Verdict |
| ANNEX F | COMPONENT STANDARDS REFERENCES | N/A |

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 46 of 52

TABLE: Critical components information

| Object/part No. | Manufacturer/ trademark | Type/Model | Technical Data | Standard | Marks of Conformity |
|--------------------|--|--------------|---|------------------------|---------------------|
| Cell Case | WUXI JINYANG NEW MATERIALS CO.,LTD | 18.3*68.05mm | 0.6±0.10; 18.3*68.05mm | IS 16046 (Part 2):2018 | Tested With Cell |
| Electrolyte | Xianghe Kunlun Chemicals Co., Ltd | KLE-PU01 | DMC/EMC/EC +LiPF ₆ +FEC | IS 16046 (Part 2):2018 | Tested With Cell |
| Separator | LIAOYUAN HONGTU LITHIUM BATTERY SEPARATOR MEMBRANES TECHNOLOGY CO.,LTD | 16um*61mm | 16um(Thickness)*61mm (Width) Shutdown temperature:137°C | IS 16046 (Part 2):2018 | Tested With Cell |
| Positive Electrode | Ningxia Shanshan Energy Technology CO.,LTD | NCM811 | Li(NiCoMn)O ₂ , NI:CO:MN= 8:1:1 Specific surface area: 0.176m ² /g, Vibration solid density: 3.528g/dm ³ , Particle size D50: 16.948um, Dimension of pole for all model: AA: 471mm*132.5mm*0.119mm BB: 649mm*127mm*0.136mm ≥180mah/g | IS 16046 (Part 2):2018 | Tested With Cell |
| Negative Electrode | ZCT JIANGXI ZICHEN TECHNOLOGY CO., LTD | F3-H | Graphite, Particle size D50: 14.45um Tap density: 1.10g/ml, Specific surface area: 1.48m ² /g, Dimension of pole for all model: AA: 546mm*134mm*0.132mm BB: 760mm*129mm*0.129mm ≥360mah/g | IS 16046 (Part 2):2018 | Tested With Cell |

Supplementary information:
Evidence provided by the manufacturer for the listed components are verified by us and the evidence are conforming to the requirements of the relevant standard.

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 47 of 52

| 7.2.1 TABLE: Continuous charging at constant voltage (cells) | | | | |
|--|--|--|------------------------|---------|
| Sample no. | Recommended charging voltage Vc, (Vdc) | Recommended charging current Irec, (A) | P | |
| 1 | 4.20 | 1.6 | OCV before test, (Vdc) | Results |
| 2 | 4.20 | 1.6 | 4.20 | A & B |
| 3 | 4.20 | 1.6 | 4.19 | A & B |
| 4 | 4.20 | 1.6 | 4.18 | A & B |
| 5 | 4.20 | 1.6 | 4.21 | A & B |
| | | | 4.20 | A & B |

Supplementary information:

A: No fire or explosion

B: No leakage

C: Leakage

D: Fire

E: Explosion

F: Bulge

G: Others (please explain)

where cell





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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 48 of 52

| 7.3.1 TABLE: External short-circuit (cell) | | | | | |
|--|----------------|------------------------|-----------------------------|--|---------|
| Sample no. | Ambient T (°C) | OCV before test, (Vdc) | Resistance of circuit, (mΩ) | Maximum case temperature rise ΔT, (°C) | Results |
| Samples charged at charging temperature upper limit:45°C | | | | | |
| 14 | 55°C±5°C | 4.21 | 77 | 67.1 | A |
| 15 | 55°C±5°C | 4.19 | 75 | 66.6 | A |
| 16 | 55°C±5°C | 4.19 | 85 | 67.2 | A |
| 17 | 55°C±5°C | 4.20 | 85 | 67.9 | A |
| 18 | 55°C±5°C | 4.21 | 82 | 67.8 | A |
| Sample no. | Ambient T (°C) | OCV before test, (Vdc) | Resistance of circuit, (mΩ) | Maximum case temperature rise ΔT, (°C) | Results |
| Samples charged at charging temperature lower limit:0°C | | | | | |
| 29 | 55°C±5°C | 4.19 | 79 | 67.7 | A |
| 30 | 55°C±5°C | 4.18 | 78 | 65.8 | A |
| 31 | 55°C±5°C | 4.20 | 82 | 67.8 | A |
| 32 | 55°C±5°C | 4.20 | 83 | 67.3 | A |
| 33 | 55°C±5°C | 4.21 | 79 | 67.1 | A |
| Supplementary information: | | | | | |
| A: No fire or explosion | | | | | |
| B: No leakage | | | | | |
| C: Leakage | | | | | |
| D: Fire | | | | | |
| E: Explosion | | | | | |
| F: Bulge | | | | | |
| G: Others (please explain) | | | | | |

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F-3, Sector - 6, Noida - 201301, India

T: +91 (0120) 4516264 - 65

E: info@urs-labs.com W: www.urs-labs.com

CIN: U21014UP1987PTC008956

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 49 of 52

| | | | | | | |
|--|---|-----------------------|----------------------------|---------------------------------------|----------------------------------|---------|
| 7.3.2 | TABLE: External short-circuit (battery) | | | | | N/A |
| Sample no. | Ambient T (°C) | OCV before test (Vdc) | Resistance of circuit (mΩ) | Maximum case temperature rise ΔT (°C) | Component Singel fault Condition | Results |
| -- | -- | -- | -- | -- | -- | -- |
| Supplementary information: This is not a battery pack | | | | | | |

| | | | | | |
|---|------------------------|---|---|---------|---|
| 7.3.5 | TABLE: Crush (cells) | | | | P |
| Sample no. | OCV before test, (Vdc) | OCV at removal of crushing force, (Vdc) | Maximum force applied to the cell during crush (kN) | Results | |
| Samples charged at charging temperature upper limit:45°C | | | | | |
| 19 | 4.20 | 4.18 | 13KN±0.78KN | A | |
| 20 | 4.21 | 4.20 | 13KN±0.78KN | A | |
| 21 | 4.19 | 4.18 | 13KN±0.78KN | A | |
| 22 | 4.20 | 4.19 | 13KN±0.78KN | A | |
| 23 | 4.20 | 4.19 | 13KN±0.78KN | A | |
| Sample no. | OCV before test, (Vdc) | OCV at removal of crushing force, (Vdc) | Maximum force applied to the cell during crush (kN) | Results | |
| Samples charged at charging temperature lower limit:0°C | | | | | |
| 24 | 4.19 | 4.18 | 13KN±0.78KN | A | |
| 25 | 4.20 | 4.19 | 13KN±0.78KN | A | |
| 26 | 4.21 | 4.20 | 13KN±0.78KN | A | |
| 27 | 4.20 | 4.20 | 13KN±0.78KN | A | |
| 28 | 4.19 | 4.18 | 13KN±0.78KN | A | |
| Supplementary information: A: No fire or explosion B: No leakage C: Leakage D: Fire E: Explosion F: Bulge G: Others (please explain) | | | | | |

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 50 of 52

| | | | | |
|---------------------------------|---------------------------------|------------------------------|--|---------|
| 7.3.6 | TABLE: Over-charging of battery | | | N/A |
| Constant charging current (A) : | -- | | | |
| Supply voltage (Vdc) : | -- | | | |
| Sample no. | OCV before charging, (Vdc) | Total charging time (minute) | Maximum outer casing temperature, (°C) | Results |
| -- | -- | -- | -- | -- |

Supplementary information:

This is not a battery pack

| | | | | |
|------------|---|---------------------------------|-------------------------------------|---------|
| 7.3.7 | TABLE: Forced discharge (cells) | | | P |
| Sample no. | OCV before application of reverse charge, (Vdc) | Measured Reverse charge It, (A) | Lower limit discharge voltage (Vdc) | Results |
| 39 | 2.74 | 3.2 | 2.75 | A |
| 40 | 2.75 | 3.2 | 2.75 | A |
| 41 | 2.74 | 3.2 | 2.75 | A |
| 42 | 2.75 | 3.2 | 2.75 | A |
| 43 | 2.76 | 3.2 | 2.75 | A |

Supplementary information:

A: No fire or explosion

B: No leakage

C: Leakage

D: Fire

E: Explosion

F: Bulge

G: Others (please explain)

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Dated : 24/09/2019

IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 51 of 52

| 7.3.8.1 TABLE: Vibration | | | | | |
|--------------------------|-----------------------|----------------------|----------------------|---------------------|---------|
| Sample no. | OCV before test (Vdc) | OCV after test (Vdc) | Mass before test (g) | Mass after test (g) | Results |
| -- | -- | -- | -- | -- | -- |

Supplementary information:
This is not a battery pack

| 7.3.8.2 TABLE: Mechanical shock | | | | | |
|---------------------------------|-----------------------|----------------------|----------------------|---------------------|---------|
| Sample no. | OCV before test (Vdc) | OCV after test (Vdc) | Mass before test (g) | Mass after test (g) | Results |
| -- | -- | -- | -- | -- | -- |

Supplementary information:
This is not a battery pack

| 7.3.9 TABLE: Forced internal short circuit (cells) | | | | | |
|--|------------------------|-----------------------|----------------------|------------------------------|---------|
| Sample no. | Chamber ambient T (°C) | OCV before test (Vdc) | Particle location 1) | Maximum applied pressure (N) | Results |
| Samples charged at charging temperature upper limit: | | | | | |
| -- | -- | -- | -- | -- | -- |
| Samples charged at charging temperature lower limit: | | | | | |
| -- | -- | -- | -- | -- | -- |

Supplementary information:
This is country specific test

| D.2 TABLE: Internal AC resistance for coin cells | | | | |
|--|----------------|----------------|--------------------|------------|
| Sample no. | Ambient T (°C) | Store time (h) | Resistance Rac (Ω) | Results 1) |
| -- | -- | -- | -- | -- |

Supplementary information:
This is not a coin cells

Handwritten signature





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E: info@urs-labs.com W: www.urs-labs.com

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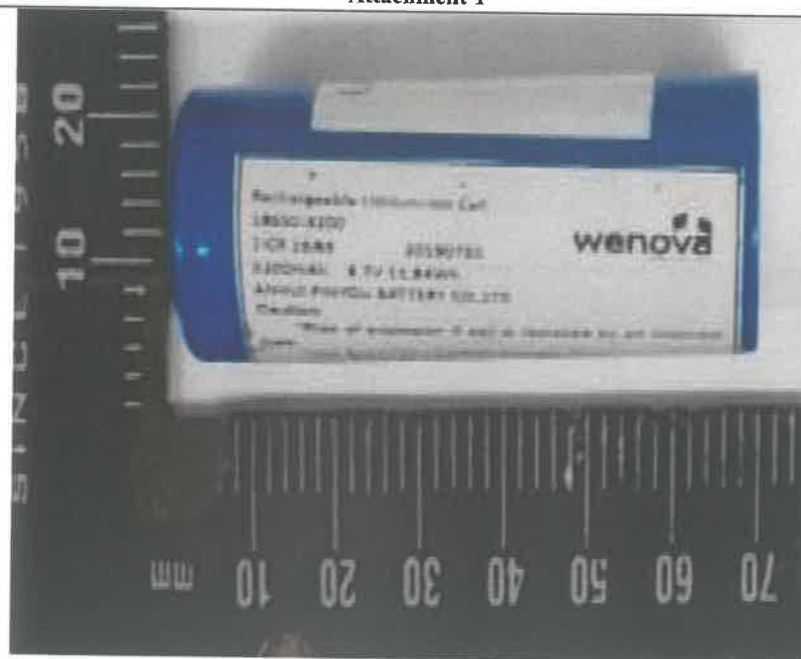
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IS 16046 (Part 2):2018 / IEC 62133-2:2017

Page 52 of 52

Attachment-1



Cell View

WenoVA

