

Level 4 Calibration Report

Pipette Calibration Services, Inc.  
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Tel: (866)964-0039

ISO/IEC 17025:2005 Accredited  
Accreditation #63119



Abc, Inc  
600 Main St  
Bar Harbor, ME 04609

|                       |                 |                |
|-----------------------|-----------------|----------------|
|                       | <u>As Found</u> | <u>As Left</u> |
| Calibrated By:        | Shanjun Zhang   | Shanjun Zhang  |
| Cal. Date:            | Jun/07/2017     | Jun/07/2017    |
| Standard:             | METTLER XP205   | METTLER XP205  |
| Balance SN:           | B140307707      | B140307707     |
| Balance Recal Due:    | Feb/28/2018     | Feb/28/2018    |
| Weight Set:           | 29673           | 29673          |
| Wt.Recal Due:         | Jul/31/2017     | Jul/31/2017    |
| Environ. Logger ID:   | OM01            | OM01           |
| Logger Recal Due:     | Jan/31/2018     | Jan/31/2018    |
| Air/Water Temp(C):    | 21.5 / 22       | 21.5 / 21.8    |
| Humidity %RH:         | 58.7            | 59.8           |
| Barometer mm. Hg:     | 760.93          | 760.93         |
| Water Den. (g/ml):    | 0.99675         | 0.9968         |
| Z factor (1/density): | 1.00326         | 1.00321        |

Calibrated at: PCSI Service Center  
Recal. Due: Dec/07/2017  
Make: Gilson  
Model: P100 Pipetman  
Serial Number: 'S62759H  
Id Marks:  
Tracking Number: 408163.0011

Evap Trap in Use ( > 50% )

As Found

| Repetition (mg)  | 20 ul | 100 ul |
|------------------|-------|--------|
| 1                | 20.14 | 99.94  |
| 2                | 19.94 | 99.90  |
| 3                | 20.09 | 100.21 |
| 4                | 19.99 | 100.14 |
| Average(ul)      | 20.11 | 100.37 |
| Inaccuracy(%)    | 0.53  | 0.37   |
| Imprecision(%CV) | 0.45  | 0.15   |
| Accuracy         | PASS  | PASS   |
| Precision        | PASS  | PASS   |

As Left

| Repetition (mg)  | 20 ul | 50 ul | 100 ul |
|------------------|-------|-------|--------|
| 1                | 20.03 | 49.70 | 99.22  |
| 2                | 20.02 | 49.48 | 99.09  |
| 3                | 20.02 | 49.54 | 99.18  |
| 4                | 19.93 | 49.51 | 99.33  |
| 5                | 19.92 | 49.70 | 99.34  |
| Average(ul)      | 20.05 | 49.75 | 99.55  |
| Inaccuracy(%)    | 0.24  | 0.51  | 0.45   |
| Imprecision(%CV) | 0.27  | 0.21  | 0.11   |
| Accuracy         | PASS  | PASS  | PASS   |
| Precision        | PASS  | PASS  | PASS   |

Manufacturer Specifications

| Volume        | 20 ul         | 50 ul       | 100 ul       |
|---------------|---------------|-------------|--------------|
| Accuracy (ul) | 19.65 - 20.35 | 49.6 - 50.4 | 99.2 - 100.8 |
| Precision%    | 0.5           | 0.24        | 0.15         |

Procedure:

This pipette was calibrated gravimetrically using Pipette Calibration Services, Inc Standard Operating Procedures. This is to certify that the above item was calibrated using standards whose measurement results are traceable to reference standards developed and maintained by (NMI) National Metrology Institutes, such as (NIST, USA) to International System of Units(SI) and/or based on fundamental physical constants. Pipette Calibration Services, Inc.'s quality management system is in compliance with ISO/IEC 17025:2005 standard. Test Uncertainty Ratio (TUR) is greater than 4:1, unless otherwise noted. This certificate and the data shall not be reproduced except in full without written approval of Pipette Calibration Services, Inc. management. Measurement results pertain only to the item calibrated and apply at the time of measurements.

The measurement uncertainty(MU) associated with the measurement results reported in this certificate is available from the organization upon request and was not accounted for in making the decision of compliance or non-compliance with the relevant specifications identified above.

The average(ul) and error % reported is calculated by multiplying the average weight as measured by the balance by the Z factor as shown in the standards and conditions.

Parts Replaced:

Seal, O-ring

Comments:

Remedial action:

Items replaced as indicated in "Parts Replaced".



Report reviewed by: \_\_\_\_\_

Patience Miller, Quality Assurance

Date of review: \_\_\_\_\_