Calibration statement

INTEGRA

INTEGRA's method for calibrating the PIPETBOY GENIUS

Explanation of specification and calibration

The PIPETBOY GENIUS offers the precision and accuracy stated in the table below under the following conditions:

- An INTEGRA serological pipet is used
- The aliquot volume must be at least 10 % of the capacity of the pipet
- Temperature of 21 °C and altitude of 520 m
- Deionized (DI) water is used

Aliquot size	Accuracy	Precision
>0.5 ml	±2 %	<1 %
≤0.5 ml	±35 µl	<2 %

Applicability of ISO 8655

ISO 8655 defines the requirements and test methods for volumetric apparatus that generates and controls the dispense volume through a piston mechanism, such as piston pipettes, burettes, dilutors, dispensers and manually-operated precision laboratory syringes.

The PIPETBOY GENIUS controls liquid movement through a serological pipet by regulating airflow instead of using a piston. As it is not piston-operated, it does not fall within the direct scope of ISO 8655, and calibration according to this standard is not applicable. INTEGRA therefore uses a dedicated calibration method based on airflow measurements and correlation to dispensed liquid volumes under defined conditions.

1 Calibration process for the PIPETBOY GENIUS

The PIPETBOY GENIUS is calibrated at room temperature using air. Its internal flow sensor is aligned with an external, certified flowmeter, which has an accuracy of ±0.6 % and repeatability of ±0.1 %.

After calibration, the PIPETBOY GENIUS is tested by dispensing 5 specific air volumes: 0.1, 5, 10, 25 and 50 ml. These volumes are chosen to represent the largest and smallest possible dispense volumes, for repeated dispenses as well as typical aliquot volumes. The airflow for each volume is measured using an external flowmeter to assess the instrument's accuracy and precision, which must conform to INTEGRA's defined specifications.

2 Correlation of airflow and dispense volume

The correlation between the defined airflow and a specific volume of DI water has been established through extensive testing under controlled laboratory conditions. The stability of this process is verified through routine checks of the calibrated flowmeter.

Reproducible, accurate and precise aliquots are ensured as the airflow volume remains consistent for each specific dispense volume, as shown in **Figure 1**.

Note: No further adjustments are necessary once the flow sensor is calibrated.

Note: Dispensing liquids with physical properties that differ from those of DI water under the stated conditions may introduce a systematic deviation in the dispensed volume, affecting dispensing accuracy. Such deviations can be compensated for using the 'Adjust Liquid' setting on the PIPETBOY GENIUS. This adjustment compensates for liquid-dependent effects, and improves dispensing accuracy without affecting the instrument's precision.

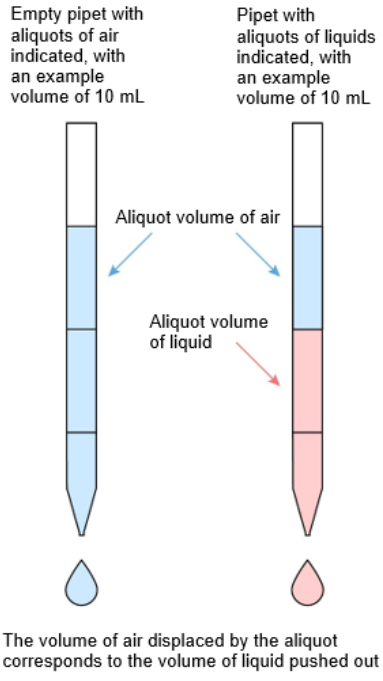

Figure 1: Correlation of airflow and dispense volume