

Validation of A&D Pipette Accuracy Testers

1. Introduction

A&D's pipette accuracy testers calculate the volumetric value of distilled water dispensed from a capacity meter such as a pipette based on its mass value measured with an electronic balance. This method is called the gravimetric method and is recommended in ISO8655-6.

A&D's pipette accuracy testers are equipped with software that automatically converts a mass value to a volumetric value in accordance with ISO8655-6.

2. Validation (Qualification)

For the conversion from a mass value to a volumetric value, the density of the distilled water to be used must be determined. This requires a mathematical scheme that has the temperature of the distilled water and the barometric pressure as its parameters. Therefore, validation when the gravimetric method is used requires 1) a balance that measures the mass value of the distilled water, 2) a thermometer that measures the temperature of the distilled water, and 3) a barometer. However, variation in measurement results due to barometric pressure fluctuation is negligible. In practice, it will suffice to set and use a representative value (fixed value) of the location, and no new equipment has to be controlled.

Consequently, validation of the pipette accuracy testers requires confirmation of the qualifications of the balance and the thermometer. The formats (samples) for these qualifications are available upon request and it is possible for users to perform the validation themselves.

Please refer to the document titled "The Uncertainty of Volume Calibration using A&D Pipette Accuracy Testers" for our technical considerations of the uncertainty of the volume calibration.