

Transforming Aliquot Preparation from Tedious to Effortless

Preparing aliquots with a serological pipet is time-consuming, subject to operator error, and poses ergonomic challenges. Innovative pipet and controller design make aliquoting a more efficient, accurate, and ergonomically friendly process. By VistaLab

Liquid handling tasks, such as preparing aliquots, are part of the daily routine in many laboratories, especially for those whose primary application is cell culture. Preparing numerous aliquots can be a tedious, time-consuming task, often necessitating hours spent performing repetitive movements in uncomfortable postures. Aliquoting also requires skill and attention to ensure the accuracy and consistency critical to successful experimental outcomes. The ali-Q™ aliquoting pipet controller is designed to address these challenges, and enables rapid, accurate aliquoting while maximizing user comfort and ease of operation.

Busy laboratories benefit from solutions that improve the speed and efficiency of routine tasks. Working with serological pipet controllers requires the operator to carefully observe the graduation marks for accurate dispensing. This becomes a time-consuming process when preparing dozens of aliquots, or plating and feeding wells for growing cells in culture. The ali-Q™ aliquoting pipet controller offers an efficient alternative, as it can be set to multi-dispense any volume up to five milliliters at the push of a button, eliminating the need to carefully observe the pipet graduations.

When performing liquid handling tasks, it is essential to consider various environmental factors including temperature, humidity, and pressure, which affect fluid volume and potentially compromise accuracy. Cold liquids, for example, deliver higher volumes than room temperature liquids, and warmer liquids deliver lower volumes. This easily overlooked parameter has potentially significant implications for



experimental outcomes. A device that automatically accounts for these factors saves valuable time and reduces the risk of error. The innovative ali-Q™ design uses computer-controlled sensors and valves that automatically detect changing environmental conditions and subsequently adjust volume settings to deliver the correct volume with each semi-automatic dispense.

Poor pipet stability within the controller may also contribute to inaccuracies. Fluid drip due to excess pipet motion is frustrating and often results in operators attempting to forcefully insert the pipet. Since serological pipets have one point of contact in the controller nozzle, movement and leaks are inevitable. Wobble-not™ serological pipets are designed with two contact zones to improve stability within the controller. When combined with the ali-Q™, they deliver excellent accuracy: 2% accuracy and 1% CV at 5 mL, and 2% accuracy and 2% CV at 0.5 mL.

Anyone who has spent hours at the bench or working in a biological safety cabinet will attest to the negative effects of poor working posture. Preparing aliquots with a serological pipet necessitates a 90° dispensing angle to visualize the fluid meniscus, which may be difficult to achieve in certain circumstances without compromising ergonomics. The ali-Q™ incorporates an internal accelerometer, for rapid, automatic adjustments based on the dispensing angle. This allows the operator to navigate objects in the surrounding area and work in a comfortable position.

Serological pipets and controllers are workhorses in many labs, however inherent design limitations may contribute to inefficiencies, inaccuracies, and injuries as a result of poor ergonomics. The ali-Q™ aliquoting pipet controller addresses the inadequacies of standard serological pipets and controllers, and is ideal for rapid preparation of accurate aliquots.

