Performance Testing for Axygen® Automation Tip (EV-100-R)

Application Note

Method

The Multi Channel Arm (MCA) of the Tecan® Freedom EVO® liquid handling workstation was used to assess precision, as coefficient of variation (% CV), and accuracy as percent deviation (% D) for Axygen 100 µL tips.

To test the ability of the tip to dispense accurately and precisely at two dispense volumes, 10 µL and 100 µL, a rack of 96 tips aspirated from an Axygen low profile reservoir (Corning Cat. No. RES-SW96-LP) and dispensed into a Corning® 96-well, black, clear bottom microplate (Corning Cat. No. 3631).

For the 10 µL test volume, each tip aspirated 10 µL of Range B solution (Artel Cat. No. MVS-204) and dispensed 10 µL into 190 µL of diluent solution (Artel Cat. No. MVS-202) in each well. For the 100 µL test volume, each tip aspirated 100 µL of Range A solution (Artel Cat. No. MVS-203) and dispensed 100 µL into 100 µL of diluent solution in each well. To determine the volume of liquid dispensed in each well, absorbance readings for the solutions (diluted Range B solution for 10 µL dispense and Range A solution for 100 µL dispense) were measured using an Artel ELx800NB® plate reader (Artel Cat. No. 1311197). Each study was performed 3 independent times for a total of 288 tip dispenses. Evaluation criteria include % D from the set dispense volume and % CV of the measured dispense volume for the 288 tip dispenses.

Results

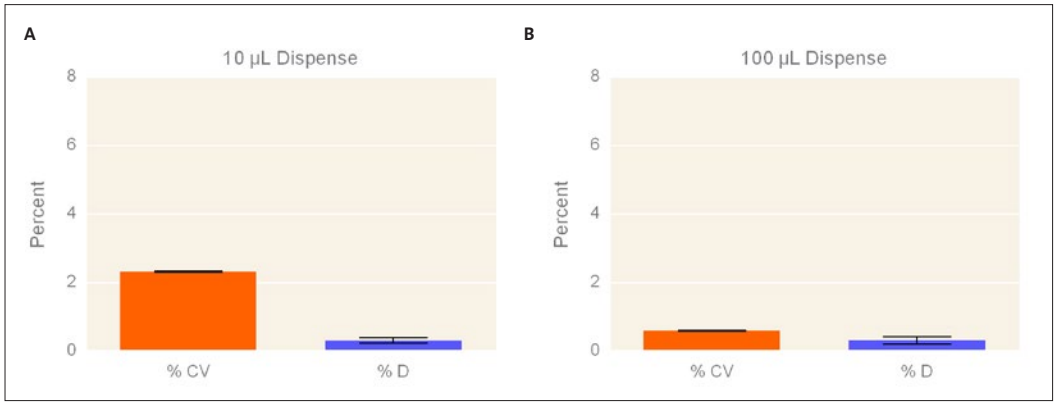


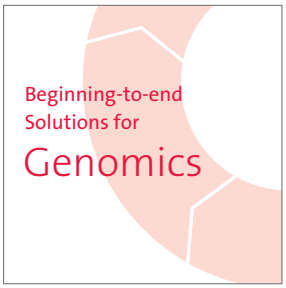
Figure 1. Analysis of EV-100-R tip with aqueous dispense. The precision (assessed by % CV) and accuracy (assessed by % D) of Axygen EV-100-R tips dispensing (A) 10 µL and (B) 100 µL volumes using the MCA head on the Tecan Freedom EVO liquid handling workstation were determined using the Artel MVS® system. The % CV and % D were below 2.5% for 10 µL and below 1.0% for 100 µL dispenses, n = 288.

Table 1. Aqueous Dispense Results

Target Volume (µL)	10	100
n	288	288
% CV	2.33 ± 0.02	0.60 ± 0.02
% D	0.32 ± 0.08	0.32 ± 0.11
Outliers	0	0

Conclusion

The % CV and % D for the Axygen automation EV-100-R tips dispensing 10 µL and 100 µL were 5% or below. Therefore, Axygen automation EV-100-R tips can precisely and accurately dispense volumes as low as 10 µL and as high as 100 µL for aqueous solution using the MCA head on the Tecan Freedom EVO liquid handling workstation.



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