

Performance Testing for Axygen® Automation Tip (EV-200-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 200 µL tips.

To test the ability of the tip to dispense accurately and precisely at two dispense volumes, 20 µL and 200 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 20 µL test volume, each tip aspirated 20 µL of Range B solution (Artel Cat. No. MVS-204) and dispensed 20 µL into 180 µL

of diluent solution (Artel Cat. No. MVS-202) in each well. For the 200 µL test volume, each tip aspirated 200 µL of Range A solution (Artel Cat. No. MVS-203) and dispensed 200 µL into 0 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 20 µL dispense and Range A solution for 200 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

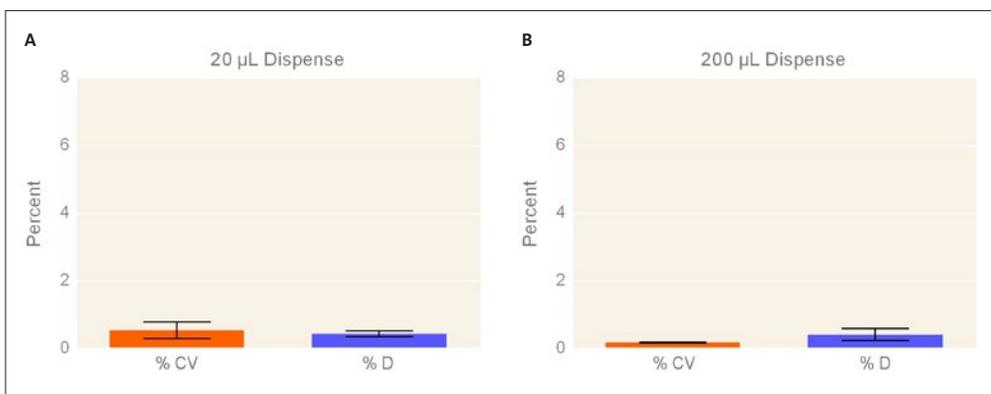


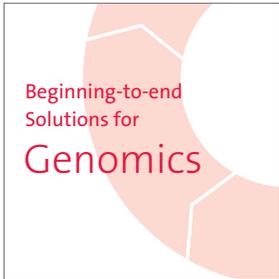
Figure 1. Analysis of EV-200-R tip with aqueous dispense. The precision (assessed by % CV) and accuracy (assessed by % D) of Axygen EV-200-R tips dispensing (A) 20 µL and (B) 200 µL volumes using the Tecan Freedom EVO liquid handling workstation were determined using the Artel MVS® system. The % CV and % D were below 1% for both the 20 µL and 200 µL dispenses, n = 288.

Table 1. Aqueous Dispense Results

Target Volume (µL)	20	200
n	288	288
% CV	0.55 ± 0.25	0.19 ± 0.02
% D	0.44 ± 0.09	0.42 ± 0.17
Outliers	0	0

Conclusion

The % CV and % D for the Axygen automation EV-200-R tips dispensing 20 µL and 200 µL volumes were 5% or below. Therefore, Axygen automation EV-200-R tips can precisely and accurately dispense volumes as low as 20 µL and as high as 200 µL for aqueous solutions using the MCA of the Tecan Freedom EVO liquid handling workstation.



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