

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

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, 8 µL and 80 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 8 µL test volume, each tip aspirated 8 µL of Range C solution (Artel Cat. No. MVS-205) or DMSO Range C solution

(Artel Cat. No. MVS-217) and dispensed 8 µL into 192 µL of diluent solution (Artel Cat. No. MVS-202) in each well. For the 80 µL test volume, each tip aspirated 80 µL of Range A solution (Artel Cat. No. MVS-203) and dispensed 80 µL into 120 µL of diluent solution in each well. To determine the volume of liquid dispensed in each well, absorbance readings for the solutions (diluted Range C solution for 8 µL dispense and Range A solution for 80 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

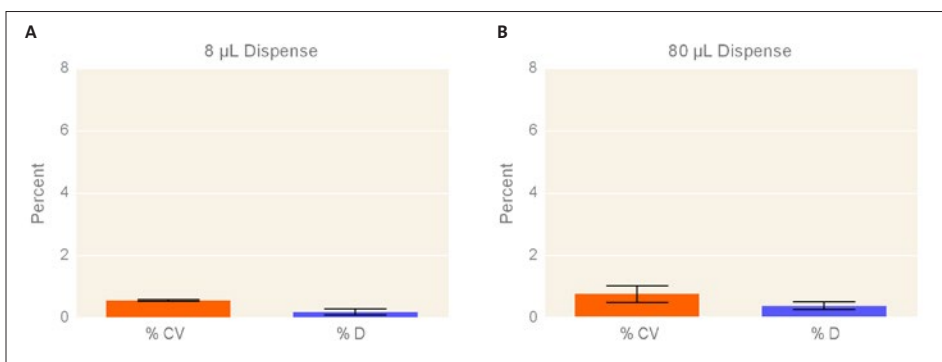


Figure 1. Analysis of EVF-100-R-S tip with aqueous dispense. The precision (assessed by % CV) and accuracy (assessed by % D) of Axygen EVF-100-R-S tips dispensing (A) 8 µL and (B) 80 µL volumes using the Tecan Freedom EVO liquid handling workstation were determined using the Artel MVS® system. The % CV and % D were below 1% for both the 8 µL and 80 µL dispenses, n = 288.

Table 1. Aqueous Dispense Results

Target Volume (µL)	8	80
n	288	288
% CV	0.57 ± 0.03	0.78 ± 0.27
% D	0.20 ± 0.09	0.40 ± 0.12
Outliers	0	2

Conclusion

The % CV and % D for the Axygen automation EVF-100-R-S tips dispensing 8 µL and 80 µL volumes were 5% or below. Therefore, Axygen automation EVF-100-R-S tips can precisely and accurately dispense volumes as low as 8 µL and as high as 80 µL for aqueous and DMSO solutions using the MCA of the Tecan Freedom EVO liquid handling workstation.

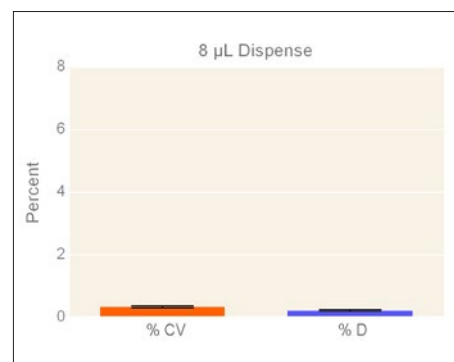
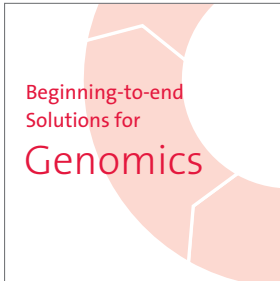


Figure 2. Analysis of EVF-100-R-S tip with DMSO dispense. The precision (assessed by % CV) and accuracy (assessed by % D) of Axygen EVF-100-R-S tips dispensing 8 µL volumes using the Tecan Freedom EVO liquid handling workstation were determined using the Artel MVS system. The % CV and % D were below 1% for the 8 µL dispense, n = 288.

Table 2. DMSO Dispense Results

Target Volume (µL)	8
n	288
% CV	0.34 ± 0.03
% D	0.23 ± 0.03
Outliers	0



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