Performance Testing for Axygen® Automation Tip (VTF-384-50UL-R-S)

Application Note

Method

The Agilent® Bravo/Velocity11 liquid handling platform was used to assess precision as coefficient of variation (% CV), and accuracy as percent deviation (% D), for Axygen 50 µL tips.

To test the ability of the tip to dispense accurately and precisely at two dispense volumes, 5 µL and 50 µL, a rack of 384 tips aspirated from an Axygen low profile reservoir (Corning Cat. No. RES-SW96-LP) and dispensed into a Corning® 384-well, black, clear bottom microplate (Corning Cat. No. 3711).

For the 5 µL test volume, each tip aspirated 5 µL of Range B solution (Artel Cat. No. MVS-204) and dispensed 5 µL into 50 µL of diluent solution (Artel Cat. No. MVS-202) in each well. For the 50 µL test volume, each tip aspirated 50 µL of Range A solution (Artel Cat. No. MVS-203) and dispensed 50 µL into 5 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 5 µL dispense and Range A solution for 50 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 1,152 tip dispenses. Evaluation criteria include % D from the set dispense volume and % CV of the measured dispense volume for the 1,152 tip dispenses.

Results

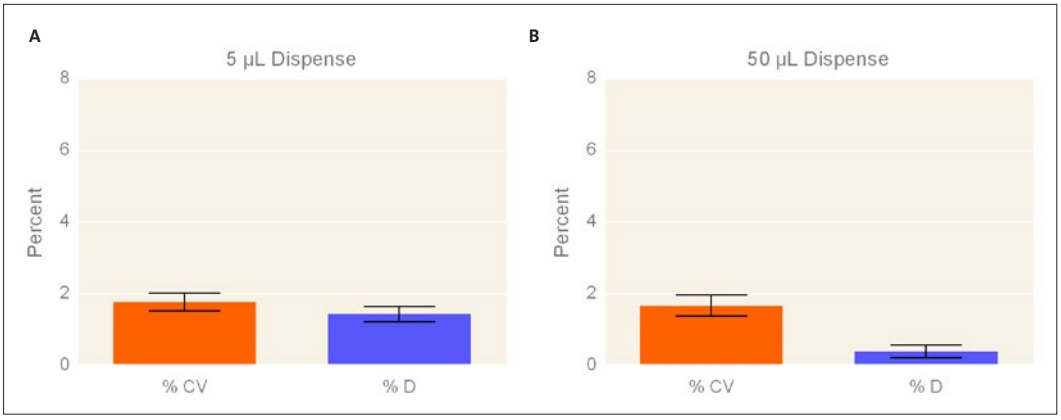


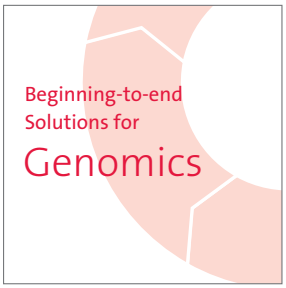
Figure 1. Analysis of VTF-384-50UL-R-S tip with aqueous dispense. The precision (assessed by % CV) and accuracy (assessed by % D) of Axygen VTF-384-50UL-R-S tips dispensing (A) 5 µL and (B) 50 µL volumes using the Agilent Bravo/Velocity11 liquid handling platform were determined using the Artel MVS® system. The % CV and % D were below 2% for both the 5 µL and 50 µL dispenses, n = 1,152.

Table 1. Aqueous Dispense Results

Target Volume (µL)	5	50
n	1,152	1,152
% CV	1.78 ± 0.24	1.68 ± 0.29
% D	1.44 ± 0.21	0.15 ± 0.12
Outliers	0	0

Conclusion

The % CV and % D for the Axygen automation VTF-384-50UL-R-S tips dispensing 5 µL and 50 µL volumes were 5% or below. Therefore, Axygen automation VTF-384-50UL-R-S tips can precisely and accurately dispense volumes as low as 5 µL and as high as 50 µL for aqueous solution using the Agilent Bravo/Velocity11 liquid handling platform.



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