

Performance Testing for Axygen® Automation Tip (VT-384-70UL-R)

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 70 µL tips.

To test the ability of the tip to dispense accurately and precisely at two dispense volumes, 7 µL and 55 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 7 µL test volume, each tip aspirated 7 µL of Range B solution (Artel Cat. No. MVS-204) and dispensed 7 µL into 48 µL

of diluent solution (Artel Cat. No. MVS-202) in each well. For the 55 µL test volume, each tip aspirated 55 µL of Range A solution (Artel Cat. No. MVS-203) and dispensed 55 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 7 µL dispense and Range A solution for 55 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

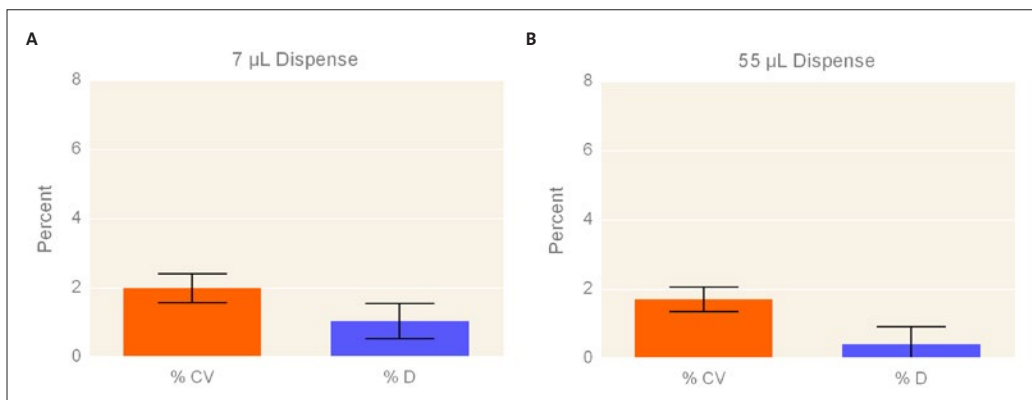


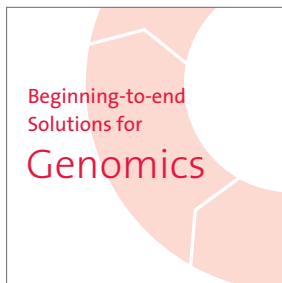
Figure 1. Analysis of VT-384-70UL-R tip with aqueous dispense. The precision (assessed by % CV) and accuracy (assessed by % D) of Axygen VT-384-70UL-R tips dispensing (A) 7 µL and (B) 55 µL volumes using the Agilent Bravo/Velocity11 liquid handling platform were determined using the Artel MVS® system. The % CV and % D were below 2% for both the 7 µL and 55 µL dispenses, n = 1,152.

Table 1. Aqueous Dispense Results

Target Volume (µL)	7	55
n	1,152	1,152
% CV	1.99 ± 0.42	1.72 ± 0.35
% D	1.06 ± 0.51	0.43 ± 0.50
Outliers	0	0

Conclusion

The % CV and % D for the Axygen automation VT-384-70UL-R tips dispensing 7 µL and 55 µL volumes were 5% or below. Therefore, Axygen automation VT-384-70UL-R tips can precisely and accurately dispense volumes as low as 7 µL and as high as 55 µL for aqueous solution using the Agilent Bravo/Velocity11 liquid handling platform.



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