Performance Testing for Axygen® Automation Tip (VTF-165-R-S)

Application Note

Method

The Agilent® Bravo/Velocity 11 liquid handling platform was used to assess precision as coefficient of variation (% CV), and accuracy, as percent deviation (% D), for Axygen 165 µL tips.

To test the ability of the tip to dispense accurately and precisely at two dispense volumes, 17 µL and 165 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 17 µL test volume, each tip aspirated 17 µL of Range B solution (Artel Cat. No. MVS-204) and dispensed 17 µL into 183 µL of diluent solution (Artel Cat. No. MVS-202) in each well. For the 165 µL test volume, each tip aspirated 165 µL of Range A solution (Artel Cat. No. MVS-203) and dispensed 165 µL into 35 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 17 µL dispense and Range A solution for 165 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

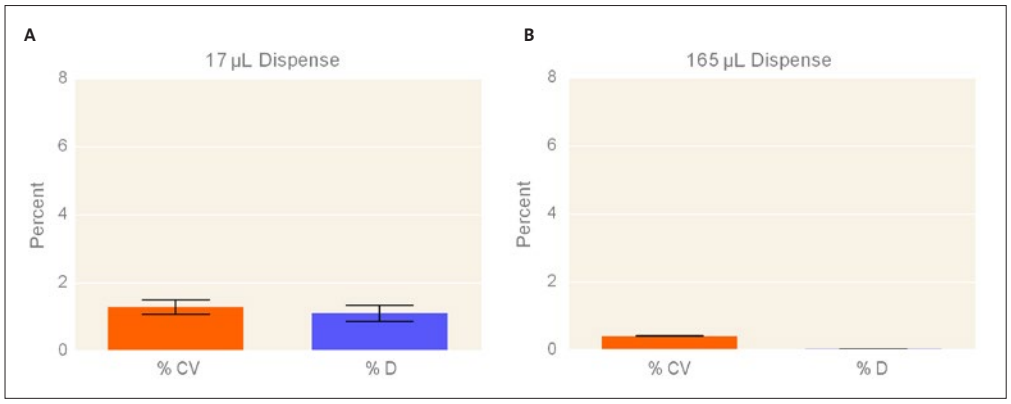


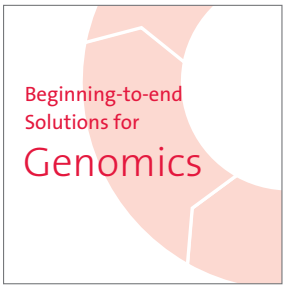
Figure 1. Analysis of VTF-165-R-S tip with aqueous dispense. The precision (assessed by % CV) and accuracy (assessed by % D) of Axygen VTF-165-R-S tips dispensing (A) 17 µL and (B) 165 µL volumes using the Agilent Bravo/Velocity 11 liquid handling platform were determined using the Artel MVS® system. The % CV and % D were below 2% for both 17 µL and 165 µL dispense, n = 288.

Table 1. Aqueous Dispense Results

Target Volume (µL)	17	165
n	288	288
% CV	1.30 ± 0.21	0.43 ± 0.01
% D	1.12 ± 0.23	0.05 ± 0.01
Outliers	0	0

Conclusion

The % CV and % D for the Axygen automation VTF-165-R-S tips dispensing 17 µL and 165 µL volumes were 5% or below. Therefore, Axygen automation VTF-165-R-S tips can precisely and accurately dispense volumes as low as 17 µL and as high as 165 µL for aqueous solution using the Agilent Bravo/Velocity 11 liquid handling platform.



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Corning Incorporated
Life Sciences
836 North St.
Building 300, Suite 3401
Tewksbury, MA 01876
t 800.492.1110
t 978.442.2200
f 978.442.2476
www.corning.com/lifesciences

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