

Performance Testing for Axygen® Automation Tip (RRF-175-CBK-R-S)

Application Note



Method

The Varispan™ arm on the Perkin Elmer Janus liquid handling workstation was used to assess precision as coefficient of variation (% CV), and accuracy as percent deviation (% D), for Axygen 175 µL tips.

To test the ability of the tip to dispense accurately and precisely at two dispense volumes, 17.5 µL and 175 µL, a column of 8 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 17.5 µL test volume, each tip aspirated 17.5 µL of Range B solution (Artel Cat. No. MVS-204) and dispensed 17.5 µL into

182.5 µL of diluent solution (Artel Cat. No. MVS-202) in each well. For the 175 µL test volume, each tip aspirated 175 µL of Range A solution (Artel Cat. No. MVS-203) and dispensed 175 µL into 25 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 17.5 µL dispense and Range A solution for 175 µL dispense) were measured using an Artel ELx800NB® plate reader (Artel Cat. No. 1311197). Each study was performed 6 independent times for a total of 48 tip dispenses. Evaluation criteria include % D from the set dispense volume and % CV of the measured dispense volume for the 48 tip dispenses.

Results

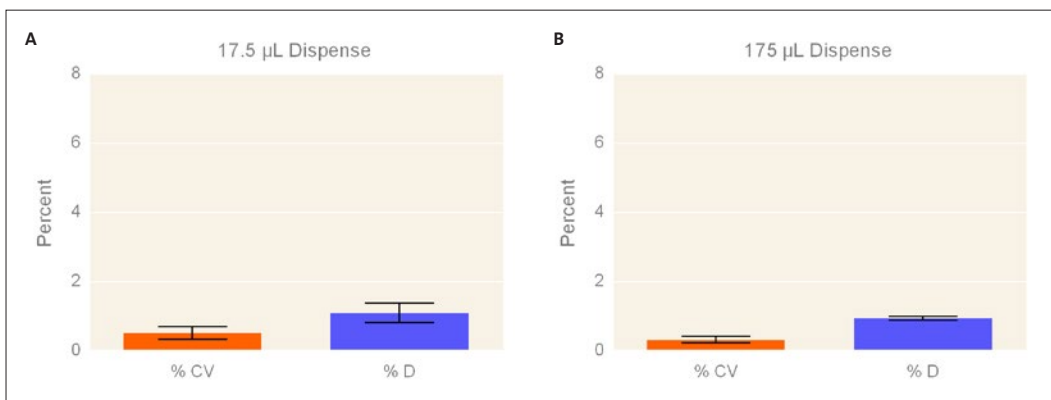


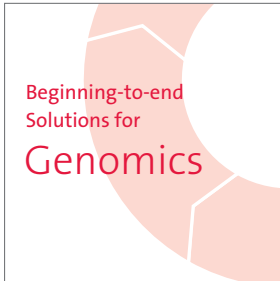
Figure 1. Analysis of RRF-175-CBK-R-S tip with aqueous dispense. The precision (assessed by % CV) and accuracy (assessed by % D) of Axygen RRF-175-CBK-R-S tips dispensing (A) 17.5 µL and (B) 175 µL volumes using the Varispan arm on the Perkin Elmer Janus liquid handling workstation were determined using the Artel MVS® system. The % CV and % D were below 1.5 % for both 17.5 µL and 175 µL dispenses, n = 48.

Table 1. Aqueous Dispense Results

Target Volume (µL)	17.5	175
n	48	48
% CV	0.52 ± 0.18	0.33 ± 0.09
% D	1.10 ± 0.28	0.95 ± 0.05
Outliers	0	0

Conclusion

The % CV and % D for the Axygen automation RRF-175-CBK-R-S tips dispensing 17.5 µL and 175 µL were 5% or below. Therefore, Axygen automation RRF-175-CBK-R-S tips can precisely and accurately dispense volumes as low as 17.5 µL and as high as 175 µL for aqueous solutions using the Varispan arm on the Perkin Elmer Janus liquid handling workstation.



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