

Performance Testing for Axygen® Automation Tip (PKF-180-R-S)

Application Note



Method

The PerkinElmer Janus® liquid handling workstation was used to assess precision as coefficient of variation (% CV), and accuracy as percent deviation (% D), for Axygen 180 µL tips.

To test the ability of the tip to dispense accurately and precisely at two dispense volumes, 18 µL and 180 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 18 µL test volume, each tip aspirated 18 µL of Range B solution (Artel Cat. No. MVS-204) and dispensed 18 µL into 182 µL of diluent solution (Artel Cat. No. MVS-202) in each well. For

the 180 µL test volume, each tip aspirated 180 µL of Range A solution (Artel Cat. No. MVS-203) and dispensed 180 µL into 20 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 18 µL dispense and Range A solution for 180 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.

Table 1. Aqueous Dispense Results

Results

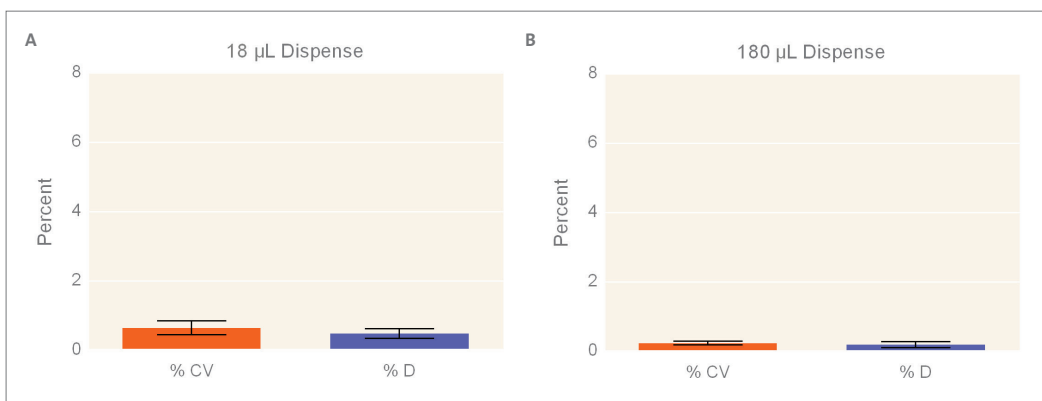


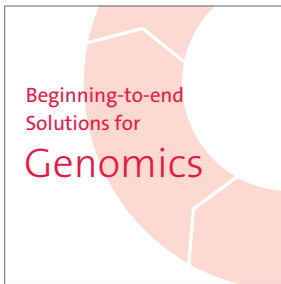
Figure 1. Analysis of PKF-180-R-S tip with aqueous dispense. The precision (assessed by % CV) and accuracy (assessed by % D) of Axygen PKF-180-R-S tips dispensing (A) 18 µL and (B) 180 µL volumes using the PerkinElmer Janus liquid handling workstation were determined using the Artel MVS® system. The % CV and % D were below 1.5% for both 18 µL and 180 µL dispenses, n = 288.

Table 1. Aqueous Dispense Results

Target Volume (µL)	18	180
n	288	288
% CV	1.16 ± 0.22	0.24 ± 0.05
% D	0.41 ± 0.29	0.20 ± 0.09
Outliers	0	0

Conclusion

The % CV and % D for the Axygen automation PKF-180-R-S tips dispensing 18 µL and 180 µL were 5% or below. Therefore, Axygen automation PKF-180-R-S tips can precisely and accurately dispense volumes as low as 18 µL and as high as 180 µL for aqueous solutions using the PerkinElmer Janus liquid handling workstation.



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