

# Performance Testing for Axygen® Automation Tip (RRF-25-C-R-S)

## Application Note



### Method

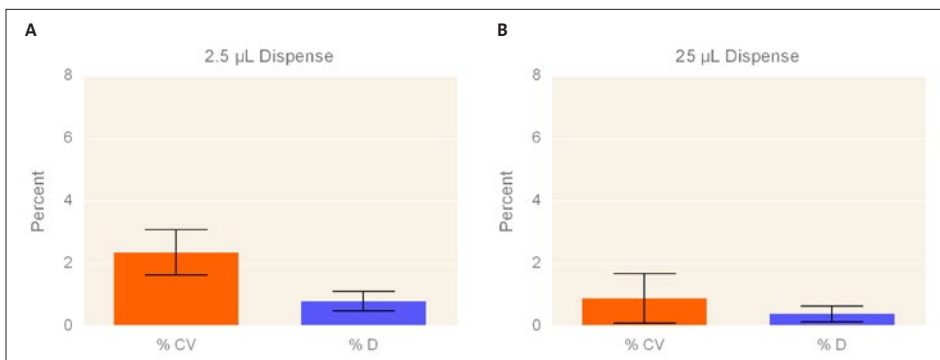
The Varispan™ arm on the PerkinElmer Janus® liquid handling workstation was used to assess precision as coefficient of variation (% CV), and accuracy as percent deviation (% D), for Axygen 25 µL tips.

To test the ability of the tip to dispense accurately and precisely at two dispense volumes, 2.5 µL and 25 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 2.5 µL test volume, each tip aspirated 2.5 µL of Range C solution (Artel Cat. No. MVS-205) or DMSO Range C solution

(Artel Cat. No. MVS-217 solution) and dispensed 2.5 µL into 197.5 µL of diluent solution (Artel Cat. No. MVS-202) in each well. For the 25 µL test volume, each tip aspirated 25 µL of Range B solution (Artel Cat. No. MVS-204) and dispensed 25 µL into 175 µL of diluent solution in each well. To determine the volume of liquid dispensed in each well, absorbance readings for the solutions (diluted Range C solution for 2.5 µL dispense and Range B solution for 25 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



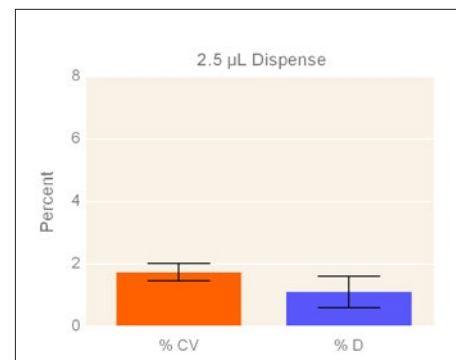
**Figure 1.** Analysis of RRF-25-C-R-S tip with aqueous dispense. The precision (assessed by % CV) and accuracy (assessed by % D) of Axygen RRF-25-C-R-S tips dispensing (A) 2.5 µL and (B) 25 µL volumes using the Varispan arm on the PerkinElmer Janus liquid handling workstation were determined using the Artel MVS® system. The % CV and % D were below 2.5% for both 2.5 µL and 25 µL dispenses, n = 48.

**Table 1.** Aqueous Dispense Results

Target Volume (µL)	2.5	25
n	48	48
% CV	2.37 ± 0.73	0.90 ± 0.79
% D	0.80 ± 0.31	0.40 ± 0.26
Outliers	0	1

### Conclusion

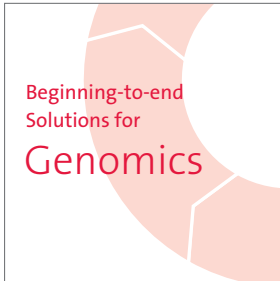
The % CV and % D for the Axygen automation RRF-25-C-R-S tips dispensing 2.5 µL and 25 µL were 5% or below. Therefore, Axygen automation RRF-25-C-R-S tips can precisely and accurately dispense volumes as low as 2.5 µL and as high as 25 µL for aqueous and DMSO solutions using the Varispan arm on the PerkinElmer Janus liquid handling workstation.



**Figure 2.** Analysis of RRF-25-C-R-S tip with DMSO dispense. The precision (assessed by % CV) and accuracy (assessed by % D) of Axygen® RRF-25-C-R-S dispensing 2.5 µL volumes using the Varispan™ arm on the PerkinElmer Janus® liquid handling workstation were determined using the Artel MVS® system. The % CV and % D were below 3.0% for the 2.5 µL dispense, n = 48.

**Table 2.** DMSO Dispense Results

Target Volume (µL)	2.5
n	48
% CV	1.39 ± 0.36
% D	2.51 ± 0.30
Outliers	0



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